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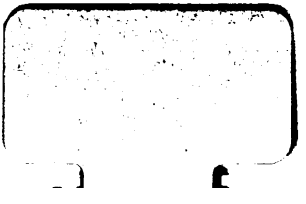

# UKRAINE

## THE LAND AND ITS PEOPLE

AN INTRODUCTION TO ITS GEOGRAPHY

BY

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# Publisher's Preface

The first appearance of this book, which is from the pen of Stephen Rudnitsky, the famous geographer of the University of Lemberg, was in the Russian Ukraine. The book was printed in Ukrainian, at Kieff, and the date under the publisher's imprint was 1910. The first translation into a foreign language was into German. This translation appeared at Vienna in 1915, with many improvements and additions.

The English translation which appears in this volume is an authorized translation of the German edition above-mentioned.

The reader is respectfully requested to note that the few unpleasant references to Russia are of course meant to apply to the Russia of the Czars, as the book was written during the Czarist régime.

Ukrainian Alliance
of America

New York City
1918

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# Book I.

# PHYSICAL GEOGRAPHY

## Ukraine as a Geographic Unit

There are few lands upon the whole globe so imperfectly known to geographic science as the one which we shall try to describe in this little work. The geographic concept of the Ukraine does not exist in the geography of today. Even the name has been almost forgotten in Europe in the course of the last century and a half. Only occasionally on some maps of Eastern Europe the name "Ukraine" shows timidly along the middle of the Dnieper. And yet it is an old name of the country, originating in the 11th Century, generally known thruout Europe from the 16th to the end of the 18th century, and then, after the abrogation of the autonomy of the second Ukrainian state, gradually fallen into oblivion. The Russian Government has determined to erase the old name of the land and the nation from the map of Europe. Little Russia, West Russia, South Russia, New Russia, were officially introduced in place of the old name Ukraine, the Austrian part of the Ukraine receiving the name of East Galicia. The people were named Little Russians, South Russians, Ruthenians, and all remembrance of the old name seemed to have been blotted out. But, in the speech of the people and in the magnificent unwritten popular literature of the nation, the name of the land could not be destroyed, and, with the unexpected rise of Ukrainian literature, culture, and a feeling of national political independence in the 19th Century, the name Ukraine came into its own again. Today there is not an intelligent patriotic Ukrainian who would use another name for his country

and nation than Ukraine and Ukrainian, and, slowly, these designations are penetrating foreign lands as well.

The Ukraine is the land in which the Ukrainian nation dwells—a great solid national territory embracing all the southern part of Russia in Europe, besides East Galicia, Northwest Bukowina and Northeast Hungary.

This district is a definite geographic unit. A discussion of its *exact* boundaries shall be reserved for the anthropo-geographical part of this book.

A division of Europe into natural regions almost invariably stops at Eastern Europe. While all the other portions of our globe have long been the object of the most detailed classification, Eastern Europe remains, as before, an undivided whole. To be sure, there have been many attempts at classification, but they are all based upon a non-geographical point of view. Only the Baltic provinces and Poland are, in their present political extent, regarded as possible geographic units.

These deficiencies in the geographic material relating to Eastern Europe are due, above all, to our imperfect knowledge of this great region. Russian science is devoting far more intensive study to the Asiatic borderlands of the immense empire than to the European home country. For this reason, our literary aids in this direction are few and unreliable. The latter criticism applies even to the twenty-volume Geography of Russia by Semyonoff and the Geography of Krassnoff. Apart from the consideration that it is relatively out of date, the fifth volume of Reclus' "Géographie universelle" still offers the best insight into this unique region of Eastern Europe.

If we glance at the map of Eastern Europe, we perceive at once that the great uniformity of this immense region makes it quite impossible to apply to Eastern Europe as a criterion the division of Western or Central Europe. It is not seas and mountains that separate the natural

regions and anthropogeographical units of Eastern Europe, but imperceptible morphological transitions, hydrographic and climatic boundaries, petrologic and floral conditions.

The Ukraine is an Eastern European country. Its situation, its decidedly continental character, its geologic history, tectonic construction and morphologic conditions, its climate, plant and animal life, its anthropogeography—all are characteristic of Eastern Europe. But within Eastern Europe the Ukraine occupies a unique position, which fully warrants our conceiving of this great land as a geographic unit standing on an equal basis with the other natural units, as Great Russia, North Russia, the Ural, White Russia, the Baltic Provinces. But it also forms a characteristic transition country from Eastern to Central and Southern Europe on the one side, and to Western Asia on the other.

The location of the Ukraine causes us necessarily to consider it as the easternmost of the Mediterranean countries of Europe. The Ukraine differs from these other Mediterranean countries in that it is not hemmed in on the north by mountains. The back-country of the Black Sea, which the Ukraine really is, therefore merges gradually into the lands lying further to the north—Great Russia and White Russia. Of all the regions of Eastern Europe, the Ukraine alone has access to the Mediterranean.

The geological history of the Ukraine is entirely different from that of the rest of Europe. The pre-Cambrian core of gneiss-granite of the Ukraine, unlike other parts of Eastern Europe, was not flooded by the sea either in the Cambrian period or the lower Silurian, while in the upper Silurian the sea covered only a slight part of Western Podolia and Northern Bessarabia. The Devonian sea crossed the boundaries of the Ukraine only in the farthest east (Donetz Plateau) and west (Western Podolia). The

carbon deposits and Permian formations, so widely distributed in Eastern Europe, are found in the Ukraine only on the Donetz; triassic rock hardly at all. The Jurassic Sea confined its action almost wholly to the plicated borderlands of the Ukraine, altho it actually flooded great stretches of Eastern Europe. Only the extension of the chalk seas thru Eastern Europe affected Ukrainian territory, especially the northern and western borderlands. The old tertiary sea, on the other hand, confined itself for the most part to the Ukraine, with the result that a goodly section of the northeastern boundary of the old tertiary deposits coincides exactly with the anthropogeographical boundaries of the Ukraine. The inland seas of the lower green-sand formation of Eastern Europe, too, are confined almost entirely to Ukrainian territory.

The geologic history of the Ukraine in the diluvian period was also decidedly different from that of the other districts of Eastern Europe. The Northern European inland ice covered the northwestern borderlands of the Ukraine only in the main ice period, for the boundary set for the glaciation of the north, on the basis of the investigations of Russian scholars, applies in great measure only to the limits of the distribution of northern glacial boulders, which were carried to their present site not by ice but by flowing water. The two indentations of the glaciation-boundary in the Don and Dnieper district merely mark the sphere of action of two glacial river systems.

The absence of a one-time inland-ice-cap differentiates the Ukrainian district very markedly from the other parts of Eastern Europe. As we perceive, even from this short description, the Ukraine has had an entirely different geologic history from the rest of Eastern Europe.

More plainly still, the independence of the Ukraine as a natural unit is revealed in its contour-line and surface-

relief. The Ukraine is the only portion of the Eastern European plain which has access to the mountainous region, for it rests upon the Carpathians, the Yaila Mountains and the Caucasus. Important individual districts of the Ukraine lie in these mountains and lessen the Eastern European uniformity of the country. The formation of the Yaila and the Caucasus began at the end of the Jurassic period—its completion and the building up of the Carpathians occur in the late tertiary period.

The plains and plateau of the Ukraine, while at first glance quite similar to those of Central Russia, are in reality very different from these as to structure and surface-relief. The nucleus of the Ukrainian plateau group, which is surrounded by the two plain districts of the Ukraine, consists of the so-called Azof Horst (so named by E. Suess), which stretches from the banks of the Sea of Azof in a northwesterly direction as far as Volhynia and Austrian Podolia. This primeval rock surface, composed of granite gneiss, is bounded by quarries and edged with declivities, which are hidden by more recent sediment deposits. Since this extended Horst stretches thru practically the whole length of the Ukraine, we shall call it "the Ukrainian Horst."

This Ukrainian Horst is of great importance for the entire process of folding, all over the earth. To the west of this Horst is the immense fold-system of the Altai, folded far into North America toward the north and northeast, in direct opposition to the main parts of the enormous system which lie to the east of it. In the east of the Horst we see the straight line of the mountain system of the Caucasus; in the west the winding guide-lines of Central Europe.

The region of the Ukrainian Horst has influenced not only the formation of the plicated country. In connection with it we find, arranged on a grand scale, but not very

intensive, disintegrating lines, which traverse the entire Ukrainian country from N. W. to S. E. These tectonic disturbances have led to strong folding and dislocation of the more recent sedimentary layers which lie close to the Horst. This folding district can be observed only in the trunk range on the Donetz and in a few isolated places to the northwest; beyond this it is buried under the huge cover of the tertiary layers. The folding process took place in the Donetz Mountains, continuing with long interruptions from the end of the paleozoic era to the beginning of the tertiary period. As pre-tertiary disturbances of this kind we consider the disturbance of Isatchky, Trekhtimirov, etc., as well as some dividing lines at the northwestern extremity of the Ukrainian Horst.

There is no doubt that the Ukrainian Horst was also the origin of more recent tectonic disturbances—tertiary and post-tertiary. The two main lines of Karpinsky (the northern—Volga, bend of the Don, source of the Donetz, delta of the Desna, South Polissye, Warsaw; the southern—delta of the Don, end of the Porohy of the Dnieper, source of the Boh, Western Podolia) for the most part go back to these more recent post-cretaceous disturbances. Besides, we are already able, despite our insufficient morphological data on the Ukraine, to establish the fact that the entire Ukrainian plateau-group is the scene of a significant post-glacial elevation. The strikingly parallel courses of the main streams, the Dniester, the Boh, the Dnieper as far as Katerinoslav, the Donetz and the Don, together with the precipices frequently accompanying them, lead us to infer the existence of tectonic influences. That the precipices of Podolia are very recent we may now confidently maintain, and that the precipitous bank of the Dnieper is quite as recent is shown by the familiar dislocation near Kaniv, where the tertiary is affected. Seismic movements of the most recent past

and morphological observations show us that the tectonic disturbances of the Ukraine are continuing into our own day.

From this tectonic characterization of the Ukraine we perceive that this country occupies an independent position in relation to the rest of Eastern Europe. The much more intensive tectonic disturbances of the Ukrainian region have produced a greater variety of plateau and plain country here than in White, Great or North Russia. The Ukrainian plateaus attain the contour-lines of 400 and even 500 meters and reveal precipices of tectonic origin, which for a long time were considered proof of Baer's law and have recently been explained as Davis Cuestas. The extensive working out of valleys in the Ukrainian plateau regions, the characteristic cañon-like type of the valleys, the frequent occurrence of hills formed by erosion, lack of glacial formations and deposits, but evidences of great erosive and flattening action—these are the chief elements of difference between the plateau lands of the Ukraine and other Eastern European plateau lands. The plains of the Ukraine possess similarities to neighboring Central Europe only in the Northwest. Beyond this, they are all more or less decided steppes, the like of which are not met with in Central Europe, Hungary not excepted. At the same time the character of the steppes of the Ukraine is different from that of the steppe-region of Eastern Russia as well, chiefly because of the detail of the country and the peculiarities of vegetation, which are occasioned by differences of climate.

Hydrographically the Ukraine is distinguished by a web of rivers concentrating in the Pontus. The Ukraine embraces the river systems of the Dniester, Boh, Dnieper, Don and Kuban—not entirely, to be sure, yet by far the greater part, leaving only the sources of the two greatest rivers to the White and Great Russians. Only the most western borderlands of the Ukraine lie within the water-

sheds of the Baltic Rivers (the Vistula district); only the most eastern mountain-spurs in the water-shed of the Caspian Sea (Terek and Kuma). We may therefore, without hesitation, conceive of the Ukraine hydrographically as the northern part of the Eastern European water-shed.

In respect to climate, the Ukraine occupies an independent position in Eastern Europe. In fact, de Martonne recently declared "the Ukrainian climate to be one of the main types of climate of the earth." We shall not go so far as this, but we must emphasize the fact that the climate of the Ukraine differs no less from that of Poland, White Russia and Great Russia than does Germany's climate from that of England or France. An important wind-partition crosses the Ukraine in winter from East to West, subjecting the entire southern part to the sway of the east wind. Winter in the Ukraine is strictly continental, with a coldness of 30 degrees, but not with the semi-polar character of the Russian or the Central European character of the Polish winter. The east and southeast winds by day prevent the snow-blankets, produced by the moist south winds of the Pontus, from ever becoming too heavy, especially in the Southern Ukraine, and cause them to disappear quickly in the spring. In the spring the temperature rises very rapidly. The summer of the Ukraine is the hot continental summer, and despite the predominant Atlantic west winds and the abundant precipitation, it is not sultry. Autumn is pleasant and dry.

The climate of the Ukraine, then, is the continental climate of the Pontus. Toward the west it merges into the Central European climatic zone at the border of Poland, into the Eastern European continental climate at the border of White and Great Russia, into the Aralo-Caspian dry climate at the eastern border. The southern borderlands of the Ukraine, like those of France, constitute a transition to the Mediterranean climate.

In respect to its flora, the unique position of the Ukraine depends upon the fact that it embraces almost the entire region of the prairie-steppes of the Pontus, with their regions of transition to the Northern and Central European forest zone. Right east of the Don begin the steppes and desert-steppes of the Caspian region. Consequently, the Ukraine is the only country in Europe which has the prevailing character of the steppes. Here, again, this circumstance is of geographical importance and makes the Ukraine, in this respect also, a geographic unit.

The most important signs of independence as a geographic unit, however, are imparted to the Ukraine by its anthropogeographical conditions, to which we shall turn our attention in Book II of this little work.

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We have now become acquainted with the natural foundations of the Ukraine as a geographic unit. One important characteristic of this geographic entity must especially attract our attention. The name of the country is Ukraine, which means border-country, marchland. It is an old historical name which originated in the course of the centuries and has become customary. And yet it is significant as hardly another name of a land or people could well be. For the Ukraine is a true borderland Europe, between Eastern Europe, and Western Asia. It lies on the borders of the European plicated mountain-girdle and of the Eastern European table-land. The Ukrainian Horst constitutes a tectonic border-post for the development of the entire European folded area. In the morphological sense as well, the Ukraine constitutes a decided borderland. Here the glacial formations give way to the erosive and flattening formation. Climatologically, too, the Ukraine is a decided borderland. Yet, most of all, does the character of the Ukraine as a land of boundaries and transitions appear in its biogeographical and anthropogeographical

conditions. In the Ukraine are merged the boundaries of two European forest regions—of the sub-steppes, transition-steppe, prairie-steppe zone, and of the Mediterranean region. The Ukraine is situated upon the boundaries of the European family of peoples—of Slavdom, of European culture—and, at the same time, upon the boundaries of that anthropogeographical structure which is so remarkable and so little known—the body social of Eastern Europe.

## Location and Size

The Ukraine lies between 43° and 54° north latitude and between 21° and 47° east longitude from Greenwich. If we look for our country on a map we will find that it lies as the northern hinterland of the Black Sea, in the southern part of Eastern Europe, just on the threshold of Asia. From the foot of the Tatra Mountains, from the sunny Hegyalia and cloud-wreathed Chornohora, from the silver-rippled San, from the dark virgin forest of Biloveza and the immense swamps of Polissye, to the delta of the Danube—so often sung in the lore of the Ukrainian folk—to the Black Sea, to the gigantic Caucasians and the Caspian, surrounded by brown desert steppes, extends our fatherland, the Ukraine. From the beginnings of the historical life of Eastern Europe, for one thousand two hundred years, the Ukrainian race has resided in this region, and has been able, not only to preserve its boundaries, but, after heavy losses, to regain and even to pass beyond them. And this continued thru centuries of stress, thru bloody wars, after the loss of the first and second national governments, and under the merciless pressure of neighboring states and peoples. That other nations, as the French, the Italians, the Spaniards, should have preserved their original seats, is not surprising; they were protected on all sides by high mountains and deep seas. All the more, therefore, must we admire the great vitality of the Ukrain-

ian nation, which has been able to retain in its possession a mother-country lying open, almost without any protection, to mighty enemies.

For the Ukraine lies at the southeastern edge of Europe, on the threshold of Asia, at the point where the easiest overland route connects the two continents. For an entire period of a thousand years, this border position was most disadvantageous and dangerous for the Ukraine; for Nature and History did not bring the Ukraine, placed as it is, into the proximity of that part of Asia which for thousands of years past had been inhabited by the rich civilizations of that continent. The Ukraine has always been the nearest European neighbor of the steppe-country of Central Asia. There, from the earliest beginnings of history, dwelt pillaging hordes of Nomads, who would flood Europe from this point. The Pontian steppes of the Southern Ukraine were, for these steppe-people, the natural military road to the West and Southwest, where the rich, civilized lands of the Mediterranean region lay invitingly open. For more than a thousand years, from the beginnings of the history of the Ukraine, these nomadic Asiatic tribes traversed the South Ukrainian steppes, covering the entire Ukraine with war and unspeakable misery. Huns, Avars, Khazars, Magyars, Pechenegs, Torks, Berendians, Polovs, Tatars, Kalmucks, infested the Ukraine in succession. Of all the European peoples, the Ukrainians always had to be the first to oppose these steppe-plunderers. The nomads always had first to force their way thru the Ukraine. Many of them were annihilated by the ancient Ukrainians; thus, the Khazars, Pechenegs, Torks and Berendians; others were held off, as the Polovs or the Kalmucks. But the Ukraine exhausted its strength in this eternal warfare, and, in the terrible stress occasioned by the Tatars, lost their ancient culture and their mighty state.

If, therefore, any one of the European nations may

claim the credit of having been Europe's shield against Asiatic barbarism, it is the half-forgotten Ukrainian nation.

The border position of the Ukraine was fatal also, for the reason that the country lay, and lies, so far distant from the cultural centers of Europe. As long as the Byzantine Empire, with its cultural wealth, remained firm, a strong stream of culture flowed from the Pontus into the Ukraine. The decline and fall of the Byzantine Empire suddenly transferred the Ukraine to the furthest (in respect to culture) corner of Europe, close to the Ottoman Empire, which was at that time hostile to culture. The western neighbors of the Ukraine, the Magyars and Poles, acquired little of the culture of Western Europe in the time of their independence, and allowed still less to slip thru into the Ukraine. The Russians entered the circle of European culture only two centuries ago, and have made only superficial cultural progress since.

And yet the geographical location of the Ukraine is not without favorable features. The Ukraine embraces the entire northern coast of the Black Sea and the Sea of Azof, and holds considerable possibilities for oversea commerce. The proximity of Asia is no longer dangerous, but, on the contrary, very advantageous. A century and a half has passed since the power of the steppe-races was finally broken. Their heritage has been taken possession of, altho in a different manner, by the Ukrainian peasant, who has thickly settled the Pontian steppes. With plow in hand, he has reconquered the lands which his ancestors tried in vain to defend with the sword. Ukrainian colonization is still advancing irresistibly in the Crimea and in the fore-country of the Caucasus, and will, no doubt, within a very short time, flood these countries completely.

A further advantage of location lies in the circumstance that the Ukraine is situated on the shortest land-route from

Central Europe to the southern part of Central Asia and India, and commands a good portion of this route. This fact may, in the very near future, be of the greatest political and economic importance. At the same time, the Ukraine is the only one of all the East European countries which, thru its location, stands in the closest relations to the Mediterranean countries.

Reserving the detailed discussion of the Ukraine's geographical location for the anthropogeographical part of my little book, let us now consider the size of the Ukraine.

The area of the Ukrainian territory is 850,000 square kilometers.

We see before us, therefore, a European country which is surpassed in area only by present-day Russia in Europe. No European people, with the solitary exception of the Russians, possesses so large a compact national territory as the Ukrainians. This characteristically Eastern European spaciousness of the territory, combined with the natural wealth of the region would, if coupled with Western European culture, make a fit dwelling-place for a world-power. On such ground as this, the possibilities for the development of a material and intellectual culture are almost unlimited.

But alas! The greatest poet of the Ukraine, Taras Shevchenko, has characterized his fatherland all too fittingly as "Our Land, but not belonging to us." Upon its large and rich territory the Ukrainian nation has had to endure so many hard buffets of fate, that it must be considered, along with the Jews, the most sorely tried civilized race on earth. Even down to the present moment the Ukrainians are a helot race, which is forced to unearth the treasures of its fatherland for its hostile neighbors.

## The Black Sea and its Coasts

Altho for many centuries separated from the Pontus by the nomad-haunted steppe-border, the Ukrainian

nation is closely identified with this sea. An enormous number of legends and songs of the Ukrainian people deal with it; even in fanciful love-songs it is mentioned. And the intimacy of this East European nation with the Sea need not surprise us. The Black Sea, with which so much in Ukrainian song and story is connected, has had a significance in the history of the Ukraine which has not been forgotten in the unwritten traditions of the people. How many cultural and warlike memories are connected with the Black Sea! How much Ukrainian blood has mingled with its waters!

The Black Sea is not large (450,000 square kilometers). It is a landlocked sea, situated between Europe and Asia, and connected with the Mediterranean Sea by the narrow Straits of the Bosphorus and the Dardanelles and the Sea of Marmora, which, geologically speaking, is a basin formed by subsidence. Great subsidences of the earth's surface created the deep basin of the Pontus. The Pontus was a part of the extensive upper Miocene and Sarmatian inland sea, which slightly flooded large districts of the present European continent as far as the Vienna basin. Toward the end of the tertiary period, this inland sea shrank and separated into single sea basins. The Pontian basin became connected with the Mediterranean Sea later, in the latter part of the diluvial period, by means of great subsidences of recent date.

The present morphology of the Pontus is in full accord with this genesis. The northern part, as far as the line of communication between the Balkan and Yaila Mountains, is a shallow sea of a depth of less than 200 meters; the so-called bay of Odessa is barely 50 meters deep; the Sea of Azof, projecting to the northeast, barely 15 meters. But just on the southern border of the line of plicated mountains, which is broken at this point, the bottom of the Black Sea declines rapidly to greater depths (1500 meters) until, declining more gradually now, it attains the depth

of 2245 meters in the center of the oval-shaped main basin of the Pontus.

The salt content of the Black Sea is much smaller than that of the ocean, or even of the Mediterranean. The Sea is comparatively small, and receives a great deal of fresh water from the many and large rivers of the region which it drains, while the influx of salt water from the Mediterranean thru the shallow straits cannot be great. The salt content is on the average 1.8%; only at great depths does it reach 2.2%. The diluted surface layer shows barely 1.5% salt content; the Sea of Azof hardly 1%. The surface water, containing little salt but a great deal of air, cannot, because of the greater density of the lower layers of water, sink far, and this low degree of ventilation accounts for the fact that the waters of the Black Sea below a depth of 230 meters are saturated with sulphide of hydrogen, and thus preclude any possibility of organic deep-sea life.

Nevertheless, the Black Sea is notable for its beautiful blue-green color and the great transparency of its waters. A white disc, on being submerged, disappeared only at a depth of 77 meters.

The surface temperature of the Black Sea is subject to many fluctuations; from 27° C in midsummer to 5° C in winter. In severe winters the Sea is frozen over in the bay of Odessa for a short time; the Limans and the Sea of Azof regularly for from two to three months.

The Black Sea has been known since hoary antiquity as a dangerous, stormy sea. The waves, running as high as 10 meters, the short cross-waves caused by the proximity of the shores, the difficult approaches to the land, are still a great hindrance to navigation, especially in the winter time. Not without cause did the Greeks originally call it "the inhospitable sea," until the great number of flourishing Greek settlements on its shores led them to change its name

to "hospitable sea." Despite this euphemistic name, however, "Pontus Euxeinos," the Black Sea has devoured many goods and lives, many Greek and Roman ships, many Turkish and Genoese galleys, many English and Russian steamers. And many a little Zaporog vessel sank in the dark waves of its native sea, "on white cliffs dashed to pieces," as is related in the old folk-epics; many a one was driven to far-off hostile Turkish shores, to the destruction of its crews.

Being a closed interior sea, the Pontus has no noticeable tides. Marked changes of level are caused by the action of the wind. In the liman of the Boh, for example, they produce 20 centimeters difference of level in a day, sometimes even 40 centimeters; in the bay of Yahórlik as much as 46 centimeters. The Sea of Azof becomes 45 to 90 centimeters deeper when there is a west wind, up to 1 meter deeper in the case of south winds, and shallower by an equal amount when the winds are in the opposite direction. Slight changes of level are dependent also on the seasons. The Black Sea has its lowest water level in February, when the region which it drains is covered with snow; the highest in May and June, as a result of the melting of the snows and the early summer rains. These fluctuations, however, amount to only 25 cm. The currents of the Black Sea, too, are inconsiderable, because of its isolation. Outside of local currents which are caused by winds, we know of only one greater current, weak in itself, which encircles the Pontian Basin in a counter clock-wise direction and may be traced to the cyclonal motion of the air. The same conditions obtain on a smaller scale on the Sea of Azof and are reflected in the direction of the tongues of land along the coasts.

Despite the fact that the deep-sea region of the Black Sea is poisoned with sulphide of hydrogen, it possesses a rich flora and fauna in its surface layers. Enormous

shoals of all kinds of fish—sturgeon, hausen, sterlet, "kephal," "bichok," "balmut," come to the coast and into the limans of the river deltas. For this reason the Pontian fishing industry has been considerable for thousands of years. The extraction of salt from the limans and salt lakes is also important. Before the age of the railroad the abundance of fish and salt of the Black Sea created a special trucking trade in the Ukraine, the so-called Chumaki, who came to the Pontian strand in whole caravans of ox-carts to take dried fish and salt in exchange for grain.

The Ukrainian coast of the Black Sea begins at the delta of the Danube and ends at the western spurs of the Caucasus. The greater part is flat coast, the smaller, steep coast.

At the northern Kilian arm of the Danube delta, where now the descendants of the Zaporog Cossacks gain a scanty living thru fishing, begins the coast of the Ukraine. The steppe approaches the sea with a steep declivity, which is bordered by a narrow strand of sand and pebbles. The coast runs evenly as far as the Dnieper delta, without any indentations. Even the famous port of Odessa is an artificial harbor.

Only at a point where a river, a streamlet, even a balka (step-glen, ravine) opens into the sea, is the steep incline of the steppe-plateau broken. We then see before us an enormous pond as it were, at the upper end of which the water-course enters and the lower end of which is locked from the sea side by a land-tongue or bar (Kossá, Peresip) as by a flat dam. This sea-water lake is called liman in Ukrainian.

Wherever a stream of great volume empties into a liman, the bar is severed at one or more places. These liman deltas are called, in Ukrainian, hirló. Limans which have such connections with the sea are broken. Of such a kind are the limans of the Kunduk, Dniester, Boh and

Dnieper. Where a little streamlet discharges which has not a sufficient volume of water to cover the loss from evaporation of the liman surface and still retain an excess for keeping open the outlet, then the bar of the liman is without an opening and the water contains a great deal of salt. Of this kind are, above all, the limans of Kuyalnik and Khadshibé near Odessa, the large, deep Tilihúl and many smaller ones. The water and the mud of such limans possess healing powers, and every summer thousands of patients travel to the hot shores of the limans to regain their health.

The limans are simply submerged eroded valleys of steppe rivers which are now being filled in by alluvial deposits. Therefore, the limans of all larger rivers are too shallow to serve as good harbors for the larger sea-going vessels. The liman of the Dniester allows entrance only to small ships drawing two meters of water; the gigantic Dnieper liman is only 6 m. deep, and only the Boh liman is accessible to larger sea-going ships. Systematic dredging, however, could, without a doubt, bring relief, and would change a number of the limans into profitable harbors.

Beginning at the liman of the Dnieper, the coast is strongly indented as far as the bay of Karkinit, but these indentations (Yahórlik, Tendra, Kharilgach) are closed off by long tongues of land and the undersea extension of the bar of Bakalsk. The west coast of Crimea is also a uniform liman coast, increasing constantly in height, however, toward the south. At the Alma delta the coast becomes steep and has two excellent harbors, Sevastopol and Balaklava, which are submerged deep valleys. The southeast coast of the Crimean peninsula is a strongly marked acclivitous shore. The steep descent of the Yaila Mountains has been transformed here, thru the abrasive action of the sea, into a beautiful coastline. Eruptive rock, capable of offering great resistance, is found here in places,

forming picturesque capes, jetties and crags, between which lie pretty little bays and coves. The agreeable climate, the clear sky, the good sea-baths and the beautiful country annually lure to this Ukrainian Riviera thousands of consumptives and health-seekers. There are rows and rows of cottage-colonies and mansions.

Beginning at the crescent-shaped bay of Feodosia, the coast again becomes lower and also has a number of salty lagoons and bars. Of the same description are the coasts of the Strait of Kerch, leading into the Sea of Azof, which is 35,000 sq. km. in area. This extremely flat sea is often compared to a liman. Numerous tongues of land (Biriucha, Obitochna, Berdianska, Kossa, etc.) jut out here into the sea, showing very clearly in their direction the effect of the cyclonal motion of the air. The low coast has an enormous number of limans and lagoons, *e. g.*, Utluk, Mius, Molochni, Yeski, Akhtirski, Tamanski, Kisiltash, etc. The most remarkable part of the Sea of Azof, however, is the Sivash. A bar 111 km. in length shuts the Sivash off from the Sea of Azof, leaving only a connecting passage of 150 m., near Henichesk. The curiously ragged banks of red-clay, the salt swamps, lagoons and islands, the bracken, ill-smelling water, which is salty in summer, and in a few spots at other times as well, have given the Sivash the name of Foul Sea (Hnile More).

The eastern part of the Ukraine's Black Sea coast is a mountainous cliff-coast again. The plications of the western Caucasus, which approach the sea obliquely, are here so quickly destroyed by the powerful abrasive action of the surf, that the erosive action of the rivers and mountain streams cannot keep pace. Therefore, the crest is difficult of access and only the two harbors of Novorossiysk and Gelendshik offer shelter for ships along this part of the coast. But even this shelter is doubtful, because of the bora-like winds.

As we perceive from this description of the Ukrainian coast, it is not one which would promote navigation among the inhabitants. Lack of harbors, isolation, remoteness from the main lines of the world's traffic, never could have an encouraging effect upon the development of navigation among the Ukrainians. Despite all this, however, they developed very high seafaring qualities in the time of the old Kingdom of Kiev and later on in the Cossack period, and the present age, too, has brought a revival of the nautical skill of the Ukrainian coast population.

# General Survey of the Physical Geography of Ukraine

## The Ukrainian Mountain Country

Glancing at the map of the Ukraine, we perceive at once that in this country we should seek in vain for such a variety of surface configuration as is peculiar to Central or Western Europe. In Germany or France there appear in a comparatively small space the most varied landscape—chains of high mountains, central chains of mountains, terrace and hill country, plateaus and plains.

It is different here in our wide Ukraine. One can travel hundreds of miles in any direction without seeing a change in the character of the scenery. The uniformity which is typical for Eastern Europe is peculiar also to the Ukraine. But not to the extent that it is to Great Russia, where the endlessness of the flat country wearies the eye of the traveler. For there are in the Ukraine landscapes of high and central chains of mountains, picturesque hill districts and richly cut plateaus, marshy plains and steppes strewn with barrows. There is, then, in the Ukraine, a variety of surface configuration, but on a large scale, not as in Western or Central Europe, confined in a small space.

The morphological nucleus of the Ukraine is the closed group of pleateaus, which extends from the country at the foot of the Carpathians and the Polish part of the Vistula region to the Sea of Azof. Pontian Plateau or Avratinian Ridge are the commonly used but incorrect names of this plateau group. The first designation might do, but the second transfers the name of a little destitute hamlet at the source of the Sbruch to a territory of hun-

dreds of thousands of square miles. We shall, therefore, select for this plateau group the name Ukrainian Plateau Group.

It forms a compact whole between the Carpathians and the Dnieper and is divided into the following individual sections: The Rostoch, between the San and Buh Rivers; Volin, between the Boh and the Teterev; Podolia, between the Dniester and the Boh; the Pocutian—Bessarabian Plateau, between the Dniester and the Prut; the Dnieper Plateau, between the Boh and the Dnieper. The plateau character continues at the rapids section of this river on the left bank, where, at some distance, the last member of the Ukrainian Plateau Group lies—the Donetz Plateau.

The plateau group of the Ukraine is bordered on the north and south by two plain districts. The northern district consists of adjoining lowlands—Pidlassye, Polissye, and the Dnieper plain—and their extensions along the Donetz; the southern district is made up of the long stretch of the Pontian steppe-plain, which, in the country at the foot of the Caucasus, merges into the Caspian desert-steppe.

Beyond the northern plain district, Ukrainian territory does not extend, except in the Don region, where it embraces the southern spurs of the Central Russian Plateau.

Besides these plateau and plain regions the Ukraine takes in also parts of three mountain systems of the European continent. The Ukraine is the only country of Eastern Europe which extends over into the region of the European mountains of plication. Parts of the Carpathians, the little Yaila chain of Crimea, and the western parts of the Caucasus lie, together with their environs, in Ukrainian territory.

From this general survey of the surface configuration of the Ukraine, we can easily see that more than nine-tenths of the surface of this land is taken up by plains and

plateaus. Nine-tenths of the Ukrainians have certainly never seen a mountain and do not even know what one looks like. Expressive of this circumstance is the fact that in the wide plateau and plain region of the Ukraine the most insignificant hills bear the high-sounding name of "mountain." But, despite this, the Ukraine also has its share in the three mountain systems of Europe—the Carpathians, the Yaila, and the Caucasus. All three were formed thru plication of the rock-layers.

The vast plication-formed mountain range of the Caucasus, even in the small part belonging to Ukrainian territory, attains an alpine height; the scenery of the Yaila along the Crimean Riviera is wonderful, but the Carpathians, altho not as lofty as the Caucasus and not of such scenic beauty as the Yaila, are the dearest to the heart of the Ukrainian. For the Ukrainian nation expanded in the Caucasus only a century ago and has but just reached the Yaila. And the Eastern Carpathians have for more than a thousand years been a Ukrainian mountain range.

Still, hardly one-third of the 1300 km. curve of the Carpathians belongs to Ukrainian national territory. Toward the west the Carpathians are inhabited by Poles and Slovaks; in the east and south by the Roumanians.

The boundary-posts of the Ukrainian territory extend in the west beyond the famous defile of Poprad. From the rounded peaks of the mountain country where the last Ukrainian villages lie, one sees rising at a very short distance the imposing range of the Tatra; still nearer lie the cliffs of the Pienini, famous geologically as well as for their scenery. In the eastern part of the Carpathian chain, Ukrainian territory reaches the Prislop pass, which connects the valleys of the Golden Bistritz and the Visheva (Visso). To the Ukraine, then, belongs the sandstone district of the Carpathians at that point where it is highest

and most developed. It is called simply the "wooded Carpathians."

The western part of the sandstone Carpathians which lies within Ukrainian territory is called the Low Beskid. It is also known as Lemkivski Beskid because it is inhabited by the Ukrainian mountain tribe of the Lemkes. The Low Beskyd extends from the defile of Poprad to the valleys of the Strviazh River, the Oslava (Lupkiv pass), and the Laboretz. It is a broad-backed but not a high mountain country. In long chains, gently undulating mountain ridges stretch from west to east and southeast. Their slopes are gentle; one can easily walk or even ride up, and numerous wagon-roads and highways lead straight over the crest or even along the edge of the crest. The peaks are rounded and of uniform height, except where an occasional gently vaulted mountain top rises above the low-hill country. Between gently sloping ranges there extend, in a longitudinal direction, valleys with watersheds and communicating passes. Broad, well-developed defiles separate the range into different sections. The Galician-Hungarian dividing-ridge has only slight gorges of genuine mountain passes.

The peaks and high passes of the Lower Beskid are insignificant. Only in the extreme west, on the Poprad and the Torissa, do the peaks reach a height of 1000 and 1100 m.; further toward the east hardly 700 to 800 m. The important Dukla Pass is hardly 500 m. above sea-level. In the middle of the Beskid mountain country we even see a great longish strip of lower country ("the Sianok Lowlands") whose low hills are less than 300 m. high.

There is a connection between the insignificant height and soft landscape forms of the Low Beskid and the geological construction and evolution of the mountain range. This mountain country, like the whole sandstone-region of the Carpathians, is built up of strongly plicate

and compressed Flysch—a series of sandstones slates, conglomerates, clays, etc., of the cretacian and tertiary ages. All these species of rock occur in this region in thin layers and have little power of resistance; everywhere the basic mountain ridge is covered with a thick coat of weathering loam; rock piles are found very seldom. There is added the fact that all the sandstone Carpathians of the Ukrainian territory have been evened out by the destructive action of water and air into a more or less perfect plain. Not until the quaternary was the "obliterated" range raised anew and transformed into a mountain district by the action of the rivers which were cutting in again.

The Low Beskid was once covered with great, mixed forests. Now the once splendid virgin forests are completely thinned and all the ill effects of forest destruction have visited the poor mountain country. The fertile soil was washed away on the mountain-sides and heaped up with rubble and mud in the valley bottoms. The tribe of the Lemkos is therefore, perhaps, the poorest of all the Ukrainians and is compelled to seek an existence in distant lands.

In the southern part of the Low Beskid the boundaries of the Ukrainian nation in Hungary reach the northern part of the Hegyalia-Sovari Ridge, which, at this point, is 1100 m. high, and is composed of extinct trachyte volcanoes.

To the east of the Lupkiv Pass begins the second section of the Ukrainian Carpathians—the High Beskid. It stretches to the southeast as far as the valleys of the Stri, Opir and Latoritza Rivers (Pass of Verezki).

The High Beskid like the Low is composed of a number of parallel, weakly joined mountain ranges, which run northwest and southeast. The type of the Rost Mountains is, therefore, even more clearly marked in this part of the sandstone Carpathians than in the preceding. The mountain crests are gently sloped, the edge of the crests slightly curled, the height of the peaks constant, the

passes only walled passes. Toward the southeast, tho, the ridge steadily increases in height. The highest peaks are Halich (1335 m.), the beautifully pyramid-shaped rocky Piku (1405 m.) and the massive Polonina ruvna (1480 m.).

In the Flysch of the High Beskid, two species of sandstone attain greater power of forming layers and of resisting pressure—the chiefly upper cretacian Yamna sandstone and the oligocene Magura sandstone. The former forms beautiful groups of rocks on peaks and precipices. The cliffs of Noich, with its traces of a rock castle, are the most famous.

The longitudinal valleys are much less developed in the High Beskid than in the Low. They are traversed only by smaller brooks. All larger streams like the Strviazh, Dniester and Opir, flow thru well-formed passes. Expansions of valleys (in regions of soft slate) alternate with contractions of valleys (in regions of hard sandstone). Most remarkable are the deeply cut out winding valleys (San, Striy), which offer the best proof of the former smoothing down and the later raising of the mountains.

Beautiful beech and evergreen forests still cover large parts of the High Beskid. Above the tree-line(1200—1300m) we meet for the first time with the characteristic plant-formation of the Polonini (mountain pastures) which yield excellent pasturage for large and small cattle during the summer and create the foundation for a primitive dairy industry.

Along the southern foot of the High Beskid, and separated from it by a chain of longitudinal valleys, a long chain of mountains rises above the neighboring Hungarian plain, bearing the name of Vihorlat (the Burnt Out). The Rivers Uz (Ungh), Latorizia and Bershava, have cut the Vihorlat into four sections. The range is lower than the Beskyd, since it is less than 1100 m. high, but it is strongly cut up by deep-gorged valleys, and has steep,

rocky precipices, bold rocky summits and pretty little mountain lakes. The range, which is covered with thick oak forests, owes its scenic character to its geological composition. The Vyhorlat is a line of extinct volcanoes, in the old craters of which the mountain lakes of the region lie. The firm trachyte lava forms picturesque rock walls and peaks. East of the Verezki Pass begins a new mountain section, perhaps the most characteristic one in the sandstone Carpathians. It extends toward the east as far as the passes of the Prut and the Black Tyssa (Theiss) and the Yablonitza Pass. This part of the sandstone Carpathians bears the name of Gorgani.

The uniform mountain walls of the Beskid give way here to shorter mountain ridges, strongly cut up by cross valleys. The main streams of the northern slope, Opir, Limnitza—the two Bistritzas—flow thru deep, picturesque passes; still deeper are the valleys of the mountain streams which flow into the Theiss, as the Torez, Talabor, etc. It is a remarkable circumstance that the dividing border ridge is lower than the ridges facing it on the north and south, which are broken thru by magnificent passes.

The edge of the Gorgani ridge also shows traces of the old leveling-surface and has only small gorges, yet it is much more curled than in the Beskid. The ridge often becomes a sharp edge and the cone-shaped peaks further break its monotony. The height of the peaks is much greater than in the Beskyd. On the Galician side the Popadia attains a height of 1740 m.; Doboshanka, 1760 m.; Visoka, 1810 m.; Sivula, 1820 m.; in Hungarian territory the Stoh in the picturesque Bershavi group is 1680 m.; the Blisnitza, in the Svidovez Range, 1890 m., etc.

The ridges and peaks of the Gorgani are covered with seas of sandstone boulders and are, therefore, difficult of access. The light gray Yamna sandstone, of great resisting power, appears in this mountain section in very thick

layers, and is the cause of the greater height and the bolder forms which, in places, are suggestive of high mountain ranges. The energetic weathering process, aided by the cover of winter snow, breaks up the mighty sandstone layers into great rocks, boulders, fragments and rubble. Deep fissures yawn between moss and lichen-covered boulders, many boulders rock under the foot of the wanderer, and many of them, thru caving-in and thru accumulation, have formed natural chambers and hollows. The rocky ridges, covered with seas of boulders, are Arshizia, the Gorgan peaks, whence comes the name of the entire mountain range. The seas of boulders and rubble-stone are called Zekit or Grekhit.

In the highest groups of the Gorgani Range (especially in the Svidovetz) are found also distinct traces of the glacial age, glacial excavations with small lakes or with swamps that have taken the place of lakes.

A splendid, only slightly thinned dress of virgin forest covers the Gorgani Chain. The lower forest section is composed of beech, ash and fir trees, the upper part of pines and stone-pines. The tree limit is very irregular and vascillates between 1100 and 1600 m. Mountain pastures are very rare, because of the seas of boulders and rubble-stone, but there are large and beautiful, tho not easily accessible, stocks of mountain pines.

The last section of the Ukrainian Carpathians is called Chornohora (Black Mountains). It extends from the Prut and the Black Theiss to the Prislop Pass; to the valley of the Visheva and of the Golden Bistritza. In this wide and long mountain district we find greater morphological variety than in the mountain sections hitherto discussed. In the wide zone of the northern foothills, which separate with a distinct edge from the sub-Carpathian hills and continue into the Bukowina, we find low ridges and rounded peaks, as in the High Beskid. Only in places on

peaks and valley sides piles of rock are seen. Then toward the interior of the range follows the wide vale of Zabie, imbedded in soft slate, and above it rises the mighty chain of the Chornohora, the only part of the sandstone region of the Carpathians which has high mountain formations. The chain is composed of the hard magura sandstone, rich in mica. A whole stretch of peaks here attains a height of 2000 m., the highest being the Hoverla (2058 m.). Well-formed, partly rocky ribs branch off from the main ridge on either side. The rock piles of the Shpitzi, Kisli and Kisi Ulohy, are some of the most imposing rock formations of the Carpathian sandstone region. Between the rocky ribs, finely developed glens lie on both sides of the main ridge of the Chornohora, the beds of the ancient glaciers. Waterfalls dash down the steep rock walls in silver streams—of particular interest is the cascade of the Prut under the Hoverla—and down below lie little crater lakes reflecting the patches of summer snow on the crater walls. Almost three-fourths of the year the Chornohoras are covered with snow. In summer the snow almost wholly disappears, and the beautiful carpet of flowers of the mountain pastures, only occasionally interrupted by dark green reserves of mountain-pine, spreads out over the ridges and peaks of the Chornohora. Every summer innumerable herds of cattle, small Hutzul horses and sheep are seen here. Then an intensive dairy industry enlivens the peak regions of the range for three months. The lower regions are still covered with extensive forests; in lower locations we find mixed forests here; in higher altitudes, almost pure stocks of pines.

Standing on one of the Chornohora peaks, on the Hoverla for instance, or the Petros or Pip Ivan, we see, in the near southwest, a new and strange mountain world. It is the third zone of the Chornohora Mountains, the mountain land of Marmarosh. Situated in the region of the headwaters

of the Theiss and orographically related to the Chornohora, the mountains of the Marmarosh are of entirely different geological composition and have a different morphological appearance. Gneiss and other kinds of crystalline slate, permotriassic and jurassic conglomerates and limestones, as well as eruptive rock of older and of more recent date, lend great geological and morphological variety to the Marmarosh Mountains. The high mountain character here is even more marked than in the Chornohoras. Rocky peaks, ridges, mountain walls, numerous craters, with small glacial lakes, adorn the Marmarosh mountains, which rise higher than 1900 m.: Pip Ivan, Farko, Mikhalek, Petros, Troiaga. Toward the southeast the range wanders over into South Bukowina, where its last boundary-posts, the rocky peaks of Yumalen and Raren really stand on Roumanian ground. And in the south, beyond the Visheva Valley, which divides the settlements of the Ukrainian Hutzuls from those of the Roumanians, rises the magnificent lofty rampart of the Rodna Mountains, with its two peaks of 2300 m., Pietrosu and Ineu.

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On the outside of the Carpathian curve stretches a hill country of varying breath, the sub-Carpathian hill-country, in Ukrainian: *Pidhirye* or *Pidkarpatye.* The mountain-edge of the Carpathian, which is at all points very distinct, rises steeply over the low-hill country at the foot, along an extended line in the neighborhood of the cities of Peremishl, Sambir, Drohobich, Striy, Kolomia. The Carpathian rivers leave the mountains by way of funnel-shaped valleys, bordered by boulder terraces, and spread their alluvial mounds over the low hill country. Wide stretches of meadow accompany the river courses; fields and woodland lie at a distance. The sub-Carpathian hill-country is built up of miocene gray clays which, along the edge of the Carpathians, contain an enormous treasure of petroleum,

ozokerite, kitchen salt and potash salts. Boulders lie on the clay, not only along the rivers, but also on the hilltops—traces of old watercourses, which transported Carpathian and northern rubble-stone toward the east in the direction of the Dniester. The yellowish cover of loam and loess lies over the whole, and its surface-layer, abounding in vegetable soil, is, in places, very fertile.

The sub-Carpathian hill country reaches to the two sub-Carpathian plains in the north—the Vistula and the Dniester Plain. Only along the European main divide a tongue of hill-country projects in the direction of Lemberg. In the glacial period, watercourses of great volume flowed directly across this hill-country divide, which, as might be expected, is now completely cleft by the bifurcation of the Vishnia, depositing considerable masses of rubble-stone and sand. Thru destruction of forests, the sands have become subject to wind action and dreary landscapes of sand-dunes have been formed.

Only the southeastern reaches of the Vistula Plain, extending along the San River to Peremishl are part of Ukrainian territory. The low loam bags, which lie between sandy and swampy valleys of the San, form the only rises of ground in this plain, which borders in the northeast on the spurs of the Rostoch.

The Dniester Plain extends in a broad ribbon along the river from the place where it leaves the mountains to the delta of the Striy. Its western part is a single great swamp region, a one-time large lake. The rivers flow on flat dams, and when the melting snows come and the rains of early summer, they overflow their banks and flood the swampy plains far and near. In some years the swamp region changes into a lake for days and weeks. In the dry season only a few swamp lakes remain, but the entire region remains a swamp and produces only a poor sour hay. Settlements lie only on the high banks of the rivers.

The eastern part of the Dniester Plain extends beyond the great alluvial mounds of the Striy River, and then reaches over into the broad valley of the Dniester, which ends in the Podolian Plateau at the point where the river enters. The eastern Dniester Plain is not very swampy, and only in places do ravines, swamps, and old river beds accompany the river course. For the most part pretty meadows, fields and woods lie on the thick sub-layer of rubble-stone and river-loam.

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If the Carpathians represent a primeval section of Ukrainian ground, the mountain ranges of Crimea and the Caucasus were entirely strange to the Ukrainians not so very long ago. How many Ukrainian slaves, in the time of Tartar oppression, cursed the rocky-wall of the Yaila which separated them from their beloved home. How discontented was the enslaved remainder of the Zaporogs when transported to the Western Caucasus.

Now the conditions are quite changed. The great colonizing movement of the Ukrainians touched the Yaila as much as twenty years ago, and has extended the frontiers of the Ukrainian settlements along the outer mountains of the Caucasus to the Caspian Sea. And the once strange, hostile mountain-worlds have opened their doors to Ukrainian colonization.

The Yaila Mountains of Crimea are, in comparison with the Carpathians, a small mountain system hardly 150 km. long and 35 km. wide. They lie in three parallel ranges, separated by longitudinal valleys, along the southeast shores of the peninsula. The northern declivities of all the ridges are gently sloping, the southern ones steep. The southern main range exceeds a height of 1500 m. with its peaks, Chatirdagh, Roman-chosh, and Demir Kapu. This main ridge, which declines toward the sea in steep precipices, is flat and rocky on top, strewn with rock-

craters; it bears the name Yaila and serves as a lean mountain pasture. Deep gorges cut the rough surface of the summit and divide it into single table mountains.

The mountains of Crimea, like the Carpathians, are mountains of plication. They are composed of Jurassic, chalk, and miocene-layers. The large blocks of lime of the Jurassic, which rest on softer slates and clays, form the main ridge of the mountains. Besides craters, we find, in the limestone mountains of the Yaila, impassable furrows (German *Karrenbildungen*) and numerous hollows.

Very picturesque is the magnificent precipitous decline of the main range of the Yaila to the sea. Here the entire southern part of the range has sunk in great ravines and the resisting power of the eruptive rocks which appear here has created a coastal mountain landscape of great beauty. Protected by the mountain wall from northerly winds, a Mediterranean flora has been able to develop here at the southern foot of the range, while beautiful leafy forests partly cover the declines of the mountains.

On the peninsula of Kerch, which forms the eastern extreme of Crimea, a low steppe-like hill-country extends seemingly as a prolongation of the Yaila Range. The new tertiary clays are here laid in flat folds, which are more closely related to the Caucasus. Here, and on the quite similarly formed Taman peninsula, we find many small cone-shaped mud volcanoes which emit gases, smoke, and thinly flowing blue-gray mud from their miniature craters.

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The magnificent lofty range of the Caucasus forms the boundary-post of the Ukraine on the east. Only the western part of the mountain system lies within Ukrainian territory. We shall, therefore, discuss it quite briefly.

The Caucasian Mountain system, which is 1100 km. in length, lies like a huge wall of rock between Europe and Asia. Most geographers consider the Caucasus as part of

the latter continent, which is correct in so far as these mountains show many characteristics of Asiatic mountain ranges. First of all they are hard to cross, much harder than the highest mountains of Europe, the Alps. Along a stretch of 700 km., the ridge of the Caucasus descends only twice to a level of 3000 m. On the other hand, the Caucasus is not wide—on the average only 150 km.—and at the point where the Grusinian army road crosses the range, barely 60 km. Then, the Caucasus, like many mountain ranges of Asia, stretches in a straight line from the peninsula of Taman to the peninsula of Apsheron, famous for its abundance of petroleum.

The Caucasus is a plication-formed mountain range composed of folded crystalline and sedimentary rock of varying ages. Along huge ravines, the entire southern part of the range has sunk down, so that the highest crystalline central zone of the range declines directly and very steeply toward the south. The highest Caucasus peaks are old extinct volcanoes, set over the basic mountains; the Elbruss (5630 m.), at the source of the Kuban and the Kasbek (5040 m.), at the source of the Terek. Proof that the subterranean powers are still active are the numerous tectonic earthquakes of Transcaucasia.

The main chain of the Caucasus possesses, besides the volcano peaks, many rocky granite peaks 4000—5000 m. in height, and, besides these, hundreds of lower peaks, all of which find their counterparts in the Alps. The present glaciation of the Caucasus is very considerable, while that of the glacial period was also very extensive and determined the present mountain forms of the Caucasus. Only the most beautiful ornament of the one-time glacial landscape is lacking in the Caucasus—the lakes, which are so abundant in the Alps.

All the larger Caucasus rivers rise as milky glacial brooks in the main range. Then, by way of deep cross-

valleys, they break thru the lower ranges, which face the main ridge in several rows, and are composed of sedimentary rock formations of jurassic, cretaceous, and old-tertiary age. Their crests and peaks become constantly lower and more rounded toward the north. Beautiful mountain pastures and thick virgin forests, full of animals that may be hunted, cover the mountains.

In the country at the foot of the Caucasus, a low hill-region is spread, which consists mainly of new-tertiary layers abounding in petroleum. At the Ponto-Caspian divide, the hill-district and plateau of Piatihorsk and Stavropol, which is composed of recent lime formations, projects from the Caucasus. From a height of 600 m. this structure declines slowly in flat hills toward the west, north and east to the Ponto-Caspian steppe-plain, in which lies the famous Manich Furrow. The Manich, or rather Calaus River rises like the Kuma in the Plateau of Stavropol and separates, in the Furrow, into two branches. The one flows thru extended Manich lakes toward the northeast into the Don River, and, incidentally, into the Sea of Azof; the other turns toward the south to the Kuma River and the Caspian Sea. But its waters reach this goal very rarely; the burning sun and the sandy soil of the Caspian steppe rob the little river of its small supply of water.

## The Ukrainian Plateau Country

The Carpathians, the Yaila and the Caucasus, are immovable boundary-walls, marking the southern borders of the Ukraine. On its wide surface there are only these narrow zones of mountain country. All the remaining territory of our fatherland is occupied by plateaus and plains. Upon these the Ukrainian nation has lived since the dawn of history. Not cloud-capped highlands, but level, lightly undulating plateaus, furrowed by picturesque

river valleys and immeasurable plains, are characteristic of the Ukraine.

Between the Carpathians and the Ural Mountains there extends an immense space which once bore the name of Sarmatian Plain and is now generally called the Russian Tableland, tho the name East European Lowland would be geographically the most fitting. In this space, which embraces half the surface of Europe, only one group of hills in the Pokutia rises above 500 m., and only one small part of the Podolia above 400 m. The entire remaining space of Eastern Europe, with slight exceptions, keeps below the 300 or even 200 m. level.

In the northern part of Eastern Europe, the lands over 200 m. high take up very little room. Like great flat islands, they rise gently from the spacious cool lowlands. In Central Europe the surface of the high part of the flat country is relatively the greatest, but these rises of ground are so insignificant and the transitions to the low plain so imperceptible, that the main features of the surface of this part of Europe were only discovered in the second half of the Nineteenth Century.

In the Ukrainian south of Eastern Europe the character of the ground elevations is different. They are the highest of all in Eastern Europe and separate very distinctly, largely by means of steep edges, from the surrounding plains. The genuine plateau landscape is the type of landscape peculiar to the Ukraine.

The Ukrainian plateau group, the real morphological nucleus of the land about which its borderlands are gathered, extends from the sub-Carpathian country and the Polish Vistula-region to the Sea of Azof and the Donetz River. It consists of the following plateaus: Rostoche, Podolia, Pokutye (Bessarabia), Volhynia, Dnieper Plateau and Donetz Plateau.

We shall begin our survey of the Ukrainian plateaus

with the Podolia. The Podolian Plateau is the most massive of all the plateaus in the Ukraine, the highest, and the one possessing the most distinctive features of a heavily cut high plain.

If, leaving the Carpathians, we overlook the surrounding country from the edge of the mountain range, we observe behind the wide stretch of the sub-Carpathian hills and plains, just on the horizon, wide, flat elevations, which obstruct the horizon in the north. These are the edges of the Podolian Plateau.

The western boundary of Podolia is formed by the wide valley of the little Vereshitza River, a valley covered with swampy meadows and large ponds. On the south and southeast, Podolia is bounded by the valley of the Dniester River, which is first wide and then narrows down to a cañon. Between the lower course of the Dniester and the Boh, the Podolian Plateau gradually leads into the Pontian Steppe-plain. On the north and northeast, Podolia is bounded by the rocky valley of the Boh and then by the river divide, which extends toward the west, between the basins of the Dniester and Dnieper Rivers. Near its limit begins the well-known steep edge which forms the decline of the Podolian Plateau to the plain of the Buh. From Brody to Lemberg, the northern boundary of Podolia is very clearly marked by this steep edge.

Despite its distinct plateau character, Podolia is by no means lacking in beautiful landscapes. The northern, steep, border of the Plateau occasionally rises for 200 m. above the swampy Buh plain, and its height above sea level is in some places 470 m. The whitish-gray chalk-marl which forms the basis of this land grade glitters from a distance, exposed thru the action of the water, which flows down the steep side. The miocene sandstone lying above shows fantastic rock piles and ravines. Beautiful beech forests are to a great extent still maintaining themselves

on the steep edge. From a distance, everything produces the illusion of a high forest-covered chain of hills. On climbing it, however, we see in the south only an unbounded lightly undulating elevated plain, with flat valleys filling the entire view.

Toward the southwest, too, Podolia declines with a similar steep border, but this one is neither so uniform nor so high and picturesque. These steep borders owe their origin to a recent uprising, which has affected the Podolian Plateau, especially in the west, since the glacial period. To the same cause the picturesque, beautifully wooded, eroded hill-country of the Opilye owes its origin, a section which extends southeast from Lemberg in the regions of Rohatin and Berezani to the Dniester, and which, with its peaks, reaches a height of 440 m. Most remarkable, however, is the long chain of rocky hills which extends from Brody to the southeast toward Kamenetz Podilski. This chain of hills, which bears the name of Toutri, is marked on all maps by the wilfully chosen name of Medobori. The limestone rock, which contains a great amount of fossils, forms fantastic crags on the more than 400 m. peaks of the hill-chain, which look down upon the land like old fortresses. The entire chain of hills is a new-tertiary coral and *briozone* reef which, after the withdrawal of the sea, remained behind as a long rock dyke.

Beyond this hilly region the entire Podolian Plateau has a flat, undulating surface. Beginning as far back as the upper Sereth and Sbruch we find typical steppe-plains. The farther southwest, the more flat, undulating and steppe-like sections do we meet, until finally the Podolian elevation gradually merges in the Pontian steppe-plain.

Much variety and beauty is given to the appearance of the Podolian landscape by the valleys of the Dniester tributaries on the left. In their upper parts they are wide and have flat, swampy ground, many ponds and bogs

and gentle valley declines. In its further course the river begins to cut in more and more deeply, the valley becomes constantly narrower and deeper and winds on in regular bends, the valley-sides become higher and steeper, bare walls of rock take the place of the soft green slopes. We are in a Podolian "yar," in a miniature cañon.

In the sides of the yars the geologic history of the Podilia is engraved in imperishable letters. The river has sawed the plateau thru as tho with a gigantic saw, and has exposed the various layers of stone. As a rule they lie nearly horizontally above one another.

The oldest rock species of Podolia are the granite-gneisses, which were folded and disturbed in pre-cambrian times. The lines of the folds and breaks stretch principally north to south. Granite composes the rocks of the Dniester rapids near Yampol and the numerous rapids of the Boh River, in whose rocky vale this primitive rock formation appears distinctively. On the granite base, almost horizontally, slightly turned toward the southwest, lie dark slate and limestone, upper silurian at first in West Podolia, then the devonic layers, of which the old red sandstone attracts the eye most of all, because of the dark red coloring which it gives to the steep walls of the Podolian cañons. These are followed by chalk layers, and, last of all, by recent tertiary formation whose gypsums form picturesque groups of rocks on the heights of the Yari walls. In the mighty gypsum stores of Podolia may be found many a large, beautiful cave, with wonderful alabaster stalactites.

All tributaries on the left side of the Dniester, beginning at the Zolota Lipa, flow into yari-cañons of this sort. The most beautiful and magnificent is the cañon of the Dniester, whose walls often exceed a height of 200 m. It cuts thru the high plateau in adventurous windings, every curve revealing new, beautiful prospects over the high, concave, steep edge, torn by ravines, and the gently rising

convex banks. In deep gorges the yari of the tributaries open into the yar of the main stream. Between the defiles stretches the flat, hardly undulating plain. In the summer only endless waving grain-steppes present themselves to the view of the traveler, only here and there a little wood appears on the horizon, or a lone farm. Suddenly the wood seems to end, the traveler is confronted by a deep, steppe-walled valley, down the sides of which climbs the road. And below, on the silvery river, amid the green of the orchards, lies village after village.

The further to the east, the more frequent do the yari become, and the balkas (gorges) similar to them but smaller; yet these are not so deep and picturesque. In the regions of Tiraspol Ananiv the entire plateau surface is very profusely cut by these defiles. In the district of Ananiv the balkas take up one-seventh of the entire surface. The plateau is cut up by these water crevasses into innumerable narrow fens.

The balka, like the yar, owes its existence to the erosive activity of flowing waters. On the Dniester we see, on both sides of its deep yars, great masses of old river boulders, which lie on the summit of the plateau beneath the thick cover of loam. They are boulder deposits of the pre-glacial Dniester. Later, when the recent raising of the Ukrainian plateau group began, and it occurred with particular force in the Podolian Plateau, the rivers cut in, and in the course of thousands of years formed their present picturesque defiles.

The entire surface of the Podolian Plateau is covered with a thick mantle of loess, which was formed in the desert and steppe period following the glacial age. In the manner in which the loess is heaped up, in the symmetry of the river valleys, whose western declivities are regularly steeper, in the general arrangement and formation of the valleys of Podolia, the great influence of winds may be distinctly recognized.

The uppermost loess layer has been transformed thruout Podolia into the famous black earth (Chornozem). Hence Podolia has for ages been famous for its fertility. "In Podolia," says an old Ukrainian proverb, "bread grows on the hedgeposts and the hedges are of plashed sausages." On the other hand, Podolia suffers greatly from lack of forests. The large areas of forest which still existed in the 16th and 17th Centuries have now divided to small woods. The effects of forest destruction were not slow. Many springs and brooks have dried up, the rivers have languished, so that in particularly dry summers there is often a dearth of water. On the other hand, after the cutting down of the forests, began the destructive activity of the gorges, which extend after every strong rain and are able in a short time to transform a rich agricultural district into a maze of ravines.

Between the Podolian Plateau and the hilly sub-Carpathian country lies the *Pocutian-Bessarabian Plateau.*

The far-stretching narrow plateau section which lies between the valleys of the Dniester and the Prut is called Pokutye (land in the corner) in the west, while in the east the name Bessarabia (properly Bassarabia) is commonly used. In the west the plateau country reaches the valleys of the Bistritza and Vorona in the sub-Carpathian region; in the southeast it passes over into Pontian steppe-plain.

On the Dniester one sees almost no difference between the character of Podolia on the left bank and of Pocutia or Bessarabia on the right. On both sides the same valley slopes, composed of the same rock layers—except that the one on the right bank is more compact, because the Dniester receives only few and small tributaries on this side. Only at some distance from the course of the Dniester do the peculiarities of the Pokutian-Bessarabian Plateau appear to the view.

The western part of the plateau, which bears the name

of Pokutye and extends to the east as far as the hill-group of Berdo-Horodishche, has a level, very flat, undulating surface, And yet it is a typical karstenite country, affected by the existence of great strata of gypsum. The region has a very great number of funnel-shaped depressions which are called Vertep and are altogether analogous to the Carso dolomites. They originated thru the dissolving action of the subterranean water in the gypsum strata. The funnel walls are always steep on one side, gray gypsum rocks rise like walls over the bottom of the funnel, which is often occupied by a small lake. Many brooks disappear in the karstenite funnels, to continue their course as subterranean streams. Nor does Pokutye lack other marks of a karstenite region. The action of the subterranean waters has, by dissolving the gypsum masses, formed large caves, which are famous for their beautiful stalactites of white alabaster. The best known are the cave of Lokitki, near Tovmach, and in the neighboring South Podolia, the caves of Bilche Zolote and the recently discovered magnificent caves of Crivche.

However, the karstenite country of the Pokutye cannot bear comparison with the karstenite regions of Krain, Istria and Croatia. Gypsum is not limestone, and its strength is insignificant as compared with strength of the lime-stone in genuine karstenite regions. A genuine karstenite formation therefore does not exist in Pokutye, and a thick cover of clay is only in exceptional cases broken by gypsum rocks.

The Pokutian Plateau is much lower than the Podolian. Only in isolated places does it attain a height of 370—380 m. and becomes constantly lower toward the east. But north of Chernivtzi (Czernowitz) it rises to a height which we look for in vain in all the rest of the Ukrainian plateau group. The wooded hill-group of the Berdo Horodishche here reaches 515 m., the greatest height above sea level

to be found between the Carpathians and the Ural. In the east, Berdo Horodishche passes over into the chain of hills of Khotin, which attains a height of 460 m. and marks the eastern end of the Pocutia. The southeastern long and wide Bessarabian section of the plateau is divided into far-reaching narrow marshes by the flat valleys of the Prut and Reut Rivers. The Prut-Dniester river divide attains a height of 420 m. (Megura hill) in the headwater region of the Reut south of the city of Bilzi. The southeastern part of the Bessarabian plateau consists of very numerous low marshes, which lie between flat valleys. The plateau becomes constantly lower and flatter and passes imperceptibly over into the Pontian Steppe-plain.

The third member of the Ukrainian plateau group is *the Rostoche.* Looking from the summit of the castle mountain of Lemberg, famous for its beautiful prospect, we see, just behind the broad valley of the Poltva River, a chain of high wooded hills which stretch toward the northeast. They form the spurs of the Rostoche.

The Rostoche, called also the Lemberg-Lublin Ridge, lies, a profusely cut, hilly, narrow plateau, which is bounded on the one side by the San and Vistula Plain, on the other side by the low country of the Buh. Toward the southwest the Rostoche has a steep rim, which, as a matter of fact, is rather insignificant-looking; toward the east it resolves itself into parallel hill-ridges, which gradually become lower and between which lie marshy valleys.

The southern part of the Rostoche, which merges with the Podolian Plateau near Lemberg and extends to the broad, sandy and marshy glacial river valley of Tanva toward the northwest, is a plateau transformed into an erosive hill-country. The highest hills attain a height of 400 m. The river valleys are in general flat; only along the steep borders of the plateau are they cut deep. The steep western border is very picturesque, with its deep gorges and

loess walls. Many vigorous springs appear here, among them the well-known Parashka spring, from which a heavy column of water rises from time to time.

The oldest rock layer of the Rostoche is the chalk-marl. Above it lie, in almost undisturbed horizontal layers, miocene limestone, sandstone, clay, sand, Diluvial loam, while sand and broken stone with many boulders, which are of unmistakable northern origin and were transported by glaciers and streams of the ice period as far as the southern part of the Rostoche, form a heavy cover everywhere. The ground is not very fertile, sand and marl soil being particularly wide-spread.

The northern part of the Rostoche, beyond the Tanva valley, is a broad, slightly undulating plateau, which, in its highest part, reaches a height of only 340 m. The western edge of the plateau is distinct and steep and declines in places 100 m. to the low country of the Vistula. Toward the north the plateau surface declines very gradually and merges almost imperceptibly into the plain of the Pidlassye. The river valleys, as those of the Buh, Vepr, are broad, flat and marshy.

The geological constitution of the northern Rostoche is almost entirely similar to that of the southern part. Its soil cover, too, is not very fertile, and only great woods have survived, especially in the districts of the old morainic sand and loam. Only in the neighborhood of the Pidlassye does the soil become more fertile. For the configuration of surface of the Rostoche, the recent post-glacial raising of the ground has also been of great significance, altho here it was not nearly so intensive as in Podolia.

*The Volhynian Plateau* extends over a broad space between the Buh in the west and the Teterev in the east, between the swampy plain of the Polissye in the north and the Dniester-Dnieper watershed and the upper Boh valley in the south. The Volhynian Plateau does not

possess the compactness of the Podolian or Rostoche Plateau. The swampy lowland of the Polissye extends along the rivers into the heart of Volhynia, thereby dividing its plateau country into several sections of different size. Likewise, the inner structure and geological constitution of Volhynia is variable. Western Volhynia, situated between the Buh and Horin Rivers, has a sub-layer of chalk marl, which is capped in places by layers of clay and sandstone and limestone of recent tertiary date. Eastern Volhynia lies entirely in the region of the primeval Ukrainian Horst, whose plicate granite-gneiss sub-layer is covered by old tertiary deposits. In this tectonically disturbed region we meet with traces of early volcanic action. Near Berestovetz, Horoshki, etc., species of eruptive rock appear as signs of radical disturbances of the earth's surface.

The surface soil of Volhynia is black soil only in the south. Beyond that we find here sandy soil, white earth and loamy soil, as signs of a one-time glacial covering and the action of fluvio-glacial waters. Many regions of loamy ground are rich in vegetable soil and not without considerable fertility.

The lowest part of the Volhynian Plateau is the western part, which lies between the broad, marshy, flat valleys of the Buh and the Stir. The slightly undulating, almost level plateau surface, which declines imperceptibly toward the Polissye, here just attains a height of 200 m., while the next section, between the Stir and the Horin is the highest part of Volhynia. As an extension of the above-mentioned northern edge of Podolia, the Kremianetz-Ostroh hill-country intrudes between the two rivers. Over 400 m. high, near the city of Kremianetz, it declines toward the north, a steep section torn by gorges and ravines. Near Dubno, the plateau is cut into a picturesque hill country with a maximum height of 340 m. The hills of Volhynia have steep, often rocky declines and flattened rocky peaks.

North of Rivne and Lutzk they finally begin to be lower and more rounded, then they dwindle to a flat billowy tract of land, until, at the borders of the Polissye, we see only an almost perfect plain.

Between the Horin and Sluch Rivers, the Volhynian Plateau becomes more uniform. Its surface is flat, and broad valleys of the rivers which flow toward the east, forming numerous ponds, part it slightly. Only in the south is a height of more than 300 m. reached; in the north, where the granite sub-layer appears everywhere, especially in river valleys, barely 200 m.

The eastern part of the Volhynian Plateau extends, at first, as a narrow plateau zone between the valleys of the Boh and the Teterev on one side and of the Sluch on the other. Then the plateau spreads out like a fan toward the north. At the source of the Boh and the Sluch, the plateau reaches a height of 370 m.; at the sources of the Teterev, 340 m. Here the surface is level, except that here and there low, gently-rounded hills arise. In the broad, northern part, the Volhynian Plateau becomes much lower and finally separates into individual plateau islands, as, for example, near Novhorod, Volinski, Zitomir, Ovruch, which rise gently from the marshy lowlands.

The valleys of the Volhynian rivers, broad, flat, with gentle slopes and marshy bottoms, differentiate the Volhynian landscape most strongly from the Podolian. The Volhynian landscape presents a view of flat, wooded hills, slowly flowing streams between flat banks, marshes and marshy meadows, sandy ground—all signs of the proximity of the Polissye.

The Dnieper Plateau has the outlines of a longish, irregular polygon. On the northwest it is bounded by the rocky valley of the Teterev, on the southwest by the Boh River, on the south and southwest by the Pontian steppe-plain, on the northeast by the Dnieper River.

This great space, however, does not constitute a uniform plateau. The broad river valleys and broad depressions which traverse the plateau have parted it into several sections. Only the uniform sub-layer and the geologic character, as well as the uniform appearance of the landscape, determine the natural unity of the region.

The sub-layer of the Dnieper Plateau is made up of the primitive granite-gneiss clod of the Ukrainian horst. The granite-gneiss formations were folded in the precambrian period. The folds and quarries stretch principally from north to south, and appear very distinctly near Zitomir and Korsun, and at the rapids of the Dnieper. The mesozoic layers also, which lie close to the granite-horst, are folded at Trekhtimiriv. The tertiary layers, which form a thin cover over the granite, lie mostly in undisturbed horizontal lines. Only along the right, steep bank of the Dnieper we see them folded and broken thru by quarries. In the neighborhood of the Shevchenko barrow they appear most distinctly.

The occurrence of eruptive rock in the south of the plateau, appearing in mound-shaped flat hills, is, however, connected only with the old disturbances in the horst.

This species of rock of the Dnieper Plateau appears almost solely in the declivities of the valleys and balkas. Otherwise it is covered everywhere by an immense mantle of loam, loess, and chornozyom. The glacial deposits, whose southern boundary passes through Zhitomir, Tarashcha, Chihirin, and Kreminchuk, present, in the territory of the Dnieper Plateau, examples of genuine fluvio-glacial moraine, as well as sands of no great depth, and in rather erratic distribution.

The configuration of surface of the Dnieper Plateau is varied enough. The greatest height (300 m.) is reached south of Berdichiv. Toward the east and southeast the plateau becomes constantly lower. This lowering, however,

does not proceed regularly, different sections of the plateau presenting different conditions in this respect.

The section projecting furthest toward the west to the Sob and Ross Rivers is a level, slightly divided plateau, with a maximum height of 300 m. The tributaries of the Teterev, Irpen and Ross flow slowly in flat valleys thru whole rows of ponds. Where they enter the plain they finally have steep granite banks and rocky beds. The plateau section between the Sob and Ross Rivers in the west and the Siniukha and Huili Tikich in the east has more valleys. The river valleys and balkas are deeper, their sides rockier, and thru them the plateau is transformed in places into chains and groups of flat hills. But this plateau section is lower than the preceding one, attaining only 260 m. Still lower is the section between the Siniukha and the Inhuletz. It attains a height of only 240 m. and is very even. The granite sub-layer appears here even in the level steppe; the valleys and balkas are cut deep with rocky bottoms and rocky slopes.

Besides these three sections, the Dnieper plateau embraces two long strips of plateau which stretch along the right bank of the Dnieper. The one is surrounded by the Dnieper, Irpen, and Ross Rivers, the other stretches from the source of the Tiasmin to the rapids of the Dnieper. The height of these strips of plateau is negligible, the highest points attaining just 190 m. near Kiev, 240 m. between Trekhtimirev and Kaniv, 250 m. near Chihirin, and barely 180 m. at the first of the rapids. The steep declivity with which the plateau strips descend to the Dnieper plain emphasize the antithesis between plateau and plain in this region very markedly.

The difference in level surpasses 100 m. near Kiev and Katerinoslav and 150 m. near the Shevchenko barrow, not far from Kaniv. The declivity of the right bank of the Dnieper is much torn by gorges, and everywhere we

see picturesque rock piles. The steep bank appears, especially to a plain-dweller, like a chain of mountains and is even called "the mountains of the Dnieper." The idea of a "mountain bank" of the Dnieper, therefore, need not be rejected outright. The aspect of Kiev and the Shevchenko barrow is one of the most beautiful in the entire Ukraine.

On ascending this "mountain chain," however, which appears so imposing from the left bank of the river, and looking toward the west, we find before us only a slightly undulating plateau surface, with rounded dome-shaped hills and deep valleys, belonging to the right-hand tributaries of the Dnieper.

The nature of the landscape of the Dnieper Plateau is, consequently, different from that of the Volhynian or Podolian. The lightly undulating plateau, gradually becoming flatter toward the east and south and broken up only near the river valleys into flat dome-shaped hills; the valleys of the rivers, wide, not deep, and yet with rocky river beds and rocky slopes, with loess gorges and walls; the mighty Dnieper with its picturesque mountain shores; the never-ending grain steppes crossed by little woods, mohilas and long, extended old walls of rock—this is the landscape view of the old Kiev country, the heart of the Ukraine.

The Dnieper Plateau becomes constantly lower toward the southeast, without, however, losing its original landscape nature in the least. Near the Dnieper rapids we see, quite distinctly, that the miocene-covered sub-layer of granite of the Ukrainian plateau group stretches straight across the river and is the cause of its rapids. But the differences in level at that point are no longer different from the variations in a plain. In the region of the source of the Samara and along the Donetz the land finally rises above the 200 m. level again. We are now in the *Donetz Plateau.*

As near as Isium we confront the first boundary post

of the plateau in the steep chalk rocks of Mt. Kremianetz on the Donetz River. Further down we see the picturesque rocks of the famous monastery of "the Holy Hills." All these are parts of the northern verge of the plateau, which is its limit on the north. Near Slavianoserbsk and Luhansk this picturesque border reaches a height of 70 m. The course of the Donetz also forms the eastern boundary; the southern boundary is formed by the small strip of the Pontian Plain on the shore of the Sea of Azof; the western border is denoted by the plain on the left bank of the Dnieper.

The Donetz Plateau stretches in a long flat ridge from N. W. W. to S. E. E., and extends a flat side-ridge to either side. The longer one goes southward, almost as far as Mariupil, the other northward to Bakhmut. The surface of the plateau is very level and declines very flatly toward all sides. Only light billows of land traverse the steppe surface, which is strewn with countless tumuli. In the south these hills often have a core of granite. The river valleys have steep, altho not high slopes. They divide the uniform surface of the heights but slightly. From the surface configuration one could never guess that at this point there was once a mountain range which fell victim to the exogenous forces of the earth's water and air blanket. Only an insignificant part of the surface of the Donetz Plateau lies more than 300 m. high; the highest point, Tovsta Mohila, barely reaching 370 m.

In its inner structure it is entirely different from all other parts of the Ukrainian group of plateaus. The entire south and west of the plateau is composed of folded granite-gneiss, of the Azof part of the horst, capped by a thin tertiary layer, and in many places (especially between Volnovakha and Kalmius) broken thru by eruptive rock formations. Next to these, in the north and south of the plateau, lie limestone, slate, clay and sandstone formations of devonian, carbonic, permian, jurassic and cretaceous

age, folded and broken thru by ravines. Over this leveled basic range lie the horizontal tertiary layers. The great development of the coal-containing carbon layers gives to the monotonous, only recently bared steppe elevation of the Donetz Plateau, great significance for the industrial life of all Eastern Europe. The coal-fields of the Donetz Plateau, 23,000 km. in size, are the richest and most important coal region of the present Russian Empire. Thanks to these "black diamonds," a forest of factory chimneys (sparsely sown as yet, to be sure) has sprung up within the most recent past in the black steppe, where the anthracite and pit-coal collieries furnish the desired nourishment. Besides this, the permian layers of the Donetz Plateau hold great deposits of rock-salt. Here, too, lie the only quicksilver mines of the Russian Empire in Europe. Rich copper deposits are being exploited here, besides which we must mention the occurrence of zinc, silver, lead, and even gold in this Donetz region, which has not yet been sufficiently explored by the mining prospector.

The Donetz Plateau forms the easternmost member of the Ukrainian plateau group, which constantly narrows toward the east. Outside of this, the group rises only at the southernmost spurs of the Central Russian Plateau above the 200 m. level. These regions of the Ukraine, however, we may safely discuss in our description of the Dnieper Plain, for the transition from this plain to the Central Russian elevation is so imperceptible and gradual, the plateau character so undecided, that even from the scientific morphological point of view, one can hardly find any difference between the plain landscape and the neighboring combined elevated surfaces.

## The Ukrainian Plain Country

The Ukrainian plateau group, which passes thru the Ukraine in its entire length is hemmed in on both sides by

two plain regions. Without a break they accompany the extended plateau groups in the north and south, uniting finally on the left bank of the Don and the country below the Caucasus. The northern plain district accompanies the northern decline of the Ukrainian horst, concealing a tectonically disturbed substratum; the southern district accompanies the northern border of the Black Sea and parts the broken chain of plicate mountains from the plateau group of the Ukraine.

The northern plain district of the Ukraine joins directly on to the Polish lowlands, and, indirectly, to the North German lowland.

The first section of the northern plain district is called Pidlassye (Podlakhia, land on the Polish border). Its northern boundary consists of the southern limits of the White Russian Plateau; the western boundary of the flat elevations near Sidlez and Bilsk; on the south the plain borders on the spurs of the Rostoche; in the east the boundary is the Buh-Pripat divide, which is only 170 m. high. The surface of the Pidlassye is very even, only slightly undulating in places on the north and south borders. The river valleys are very broad and flat. Only the great forest (the well-known Biloveza forest lies here) and the water-courses bring variety into the monotonous country. The main stream of the Pidlassye, the Buh, as well as its tributaries have the character of genuine lowland rivers. They flow thru their over-great valleys in great turns, divide into many arms, and form innumerable old river beds. Besides these we find, in southern Pidlassye, a large number of lakes and many swamps and moors which mark the sites of former lakes.

The chalk and tertiary substratum appears only in very few places, the rest being covered everywhere by sand and loam, which include boulders and rubble of Finnic-Scandinavian origin. These are traces of the great (second)

glacial period of Northern Europe, which covered the entire region of the Pidlassye with glacial ice. The lakes are morain-lakes. The ice of the glacial period did not reach Pidlassye. At that time a broad primeval river valley formed here as an extension of the primeval Vistula river valley. In this valley the water from the melting glacier flowed off to the east toward the lowland of the Polissye.

*The Polissye* (woodland) is one of the most remarkable lands of Eastern Europe. Only a low (170 m.) and very flat divide, which is crossed without difficulty by the Dnieper-Buh ship canal, separates the Polissye from the Pidlassye. In the north the White Russian Plateau approaches, in the south the Volhynian, in the east the Polissye extends beyond the Dnieper to the spurs of the Central Russian Plateau. The region thus bounded forms an immense flat trough, in the vertical axis of which the Pripet River flows. The bottom of this trough is very flat and lies at a height of 120—150 m. Only in places do we find almost imperceptible rises of ground. The substratum of the Polissye is composed of chalk marl with numerous holes made by springs (vikno=window), while in the east oligocene formations also appear. But this substratum is seen very seldom, all the rest of the Polissye being covered with diluvial sands and great swamps. The sands take in all the elevated places and form wandering or wood-covered dunes. These sandy rises of ground, together with the elevated banks of some of the rivers, afford the only sites for human abodes. All the remaining land is marshy wood, genuine forest swamps, bog or moor. The Pripet with its tributaries, the Stokhod, Stir, Hornin, Ubort, Uz (on the right) and the Pina, Yassiolda, Sluch, and Ptich (on the left), comprises the water system of the Polissye. All these rivers flow very slowly and deposit the mud which they bring from the plateau regions surrounding the Polissye along their courses. By this means

they raise their beds and their banks more and more, so that all these Polissian rivers flow upon flat dams. At the time of high water the rivers overflow their banks and flood the entire lowland far and near. At the time of the melting of snows in the spring, or of the strong showers in the early summer, the entire Polissye is transformed into an immense lake, above whose surface only the flooded forests and the settled sandy elevations of ground are visible. The spring flood lasts from two to three months, the summer floods the same length of time, for the water flows off very slowly because of the slight decline. On the highways and railroads all traffic is blocked and certain places in the Polissye may be reached only by water. During the flood period the rivers have often sought new beds, and this explains the frequency of old river beds and river branches, which are peculiar to all the Polissian river courses. And, as reminders of the floods, innumerable pools and marsh lakes remain behind.

These periodic floods are the main cause of the continuance of the Polissian swamps. We can find two main types of marshes in the Polissye. In the west and north of the region, great peat moors, with pine woods, predominate; in the south and east treeless marsh meadows, overgrown with willow brush. These are called *hala*. Many fictions are told by the inhabitants of the Polissye about the swamps and small marsh lakes being bottomless. For a long time it was even believed that the swamps lay lower than the normal surface of the rivers. But exact measurements have proved these "fairy tales" to be false and have shown that the swamps of the Polissye are not deep and lie at a higher level than the rivers. Since 1873 the Russian government has been working to drain the swamps and reclaim them for civilization. Up to 1898, 6000 kilometers of canals are supposed to have been dug and 32,000 square kilometers of ground made usable.

The glacial period was of great importance for the

surface configuration of the Polissye. Apart from the traces of the main glacial period, which are met with frequently in southern Polissye, it was the third glacial period that was of marked significance. The water from the Baltic glacier flowed off thru the region of the present Polissye and formed a large lake with the Dnieper as its outlet. The deposits of this lake are to be found especially in the south of the Polissye basin. The lake was then gradually filled in, the northern and western tributaries bringing more sand, the southern ones mud. At the same time the Pripet River cut in more deeply, and was, therefore, constantly more able to carry the waters of the Polissye to the Dnieper River. Swamps have taken the place of the lake and have gradually covered the entire land. The many smaller lakes of the region (the largest of them are Vihonioske Ozero and Knias) are the only remains and proofs of the one-time great lake. Only at the time of high water does the Polissye recall the memory of former times.

Dreary is the Polissian landscape. The dark forest in the deep-bottomed swamps alternate with the open marsh-meadow covered with pools; with gliding flow the many-armed rivers traverse the gloomy country. On yellow-white sand-dunes stand a few log-houses amid wretched little fields and poor meadows, corduroy and brush roads stretching for miles connect small, very sparsely scattered human settlements.

The Polissye Plain also extends to the left bank of the Dnieper, and there imperceptibly passes over into a comparatively narrow lowland district which stretches along the main river of the Ukraine. This is the third member of the series of plains of the Ukraine—*the Dnieper Plain.* It extends toward the southeast as far as the region of the rapids (porohi) of the Dnieper and rises slowly toward the northeast, passing over into the Central

Russian Plateau. The transition takes place so imperceptibly that the difference in the nature of the country only becomes apparent at the furthest bounds of Ukrainian territory, which practically lie in the southern spurs of the Central Russian Plateau.

The Dnieper Plain is quite level only along the river itself. Every year a strip of the plain, in places 10 km. wide, is flooded by the Dnieper River, wherefore it is full of old river beds and swamps, on the Desna and near Cherkassy, where the lowland, too, enters upon the right Dnieper bank, and also of sand-dunes. Near Chernihiv and Uizin the landscape is quite Polissian and the name Polissye, too, is often used here to denote the region. Toward the southeast the Polissian character begins to gradually disappear. Black earth takes the place of the sandy soil, the forest mantle becomes constantly thinner, and the flat, undulating steppe-plain, with its innumerable barrows and plate-shaped depressions of ground, where, in springtime, small steppe lakes glisten in the sunlight, increases very rapidly.

The river valleys, along which the Dnieper Plain intrudes far into the Central Russian Plateau, are very wide valley slopes on the right, and flat slopes on the left side. Sand, swamps and forest terraces cover the flat valley bottoms, which are flooded every spring.

At the porohs of the Dnieper the country rises much higher than at Pereyaslav or Kreminchuk, where the Dnieper Plain rises barely 50 m. above sea-level. At the porohs the landscape on both sides is that of a low rock-plateau. The picturesque rocks of the Dnieper banks, the rapids and ledges of rock in the river bed, everywhere remind us that here the Ukrainian Horst is crossed by the main stream of the Ukraine. Not until we get down to the Zaporoze (land below the rapids) do we find the genuine lowland character again—in the Pontian Steppe-plain.

The transition of the Dnieper Plain to the southern spurs of the Central Russian Plateau is marked only by the rising of the valley slopes of the tributaries of the Dnieper in this region. Beyond that, the surface of the high bog, lying between the rivers, remains as flat and level as on the Dnieper and below the 200 m. level. Moreover, the spurs of the Central Russian elevation nowhere within Ukrainian territory attain the level of 300 m. The spur between the Dnieper and the Desna barely reaches a height of 230—240 m.; near the high Desna bank, the spur between the Desna and the Sem barely 260 m. About the sources of the Sem, Psiol and Donetz, the country attains a summit height of 280 m.; between the upper Donetz and Don only 250—260 m. From these highest regions the country declines imperceptibly but steadily toward the southwest, south and southeast.

The general nature of the land in the region of the southern spur of the Central Russian Plateau is entirely analagous to that of the neighboring Dnieper Plain, except that the river valleys are more deeply cut. The right valley-side descends to the river in a steep slope, furrowed by water rifts. The broad, flat valley bottom is occupied by river branches and old river beds, marshes and marsh meadows, sand areas or dunes. The left bank rises very gently, and we at last come upon the level, or at most slightly undulating surface of the water-shed, between two rivers. It, in turn, declines suddenly to the neighboring river and the succession of land-forms begins anew. This monotony of landscape reminds one of the neighboring Great Russia. The only variety is afforded here by the details of landscape, which appear most numerous in this region of the Ukraine.

These are rain water-rifts (in Ukrainian balka, provallia, yaruha). In this, and often in other plateau and plain lands of the Ukraine, they become a terrible scourge. The

heavy mantle of black soil, loess and loam favors the formation of water-rifts as well as the loose chalk and old tertiary strata (marl, sand, clay). The strenuous cutting down of forest in the past century has given the final impulse to the formation of such water clefts. In the loose soil, no longer held together by the forests, the water-rifts grow and spread after every heavy rain with terrible speed, and may, in a few years, reduce a wealthy farmer to the beggar's staff by transforming his most profitable black-soil fields into a maze of deep, dry ravines. Only a national re-stocking of the forests could bring the land relief. Especially in the neighborhood of the high precipitous banks of the rivers, the water-rifts work their mischief.

The glacial age had no particular significance for the surface configuration of the Dnieper Plain and the adjacent plateau spurs. Only in the north Chernihov country we find real traces of the glacier. The large peninsulas which the southern limit of the glacial boulders forms along the course of the Dnieper and the Don are by no means to be regarded as traces of two great glacial tongues. The sand and loam masses, with enclosed glacial boulders, which are found in the region of these peninsulas, are of fluvio-glacial origin, and were deposited by melted ice from the glacier on its way to the Black Sea. The northern limit of the black soil region is not in the least affected by these problematic glacial peninsulas.

After the glacial period, however, movements of the earth took place in the entire Ukrainian plateau group. It rose considerably, and the erosive action of the rivers began. At the point where the axis of the Ukrainian horst cuts the Dnieper, we find this rise of ground also in the Dnieper Plateau. The rapids of the Dnieper were formed at that time, and, up to the present, the giant river has not succeeded in leveling its falls.

That tectonic disturbances are not unknown to the

Dnieper Plain we learn from the occurrence of volcanic rock and displacement of the strata near Isachki, not far from the city of Lokhvitza, and on Mount Pivikha, north of Kreminchuk. It seems that along the northeast border of the Ukrainian horst a greatly disturbed area is hidden beneath more recent flat-piled rock layers. Great disturbances of the magnetic force of the earth seem to indicate the same.

The Dnieper Plain forms the last member in the northern plain district of the Ukraine. *The southern plain district* which extends along the northern banks of the Black Sea, from the delta of the Danube into the Kuban region, has since ancient times borne the accepted name of *the Pontian Steppe-plain*. Its old Ukrainian name is simply *nis* (lowland) or *dike pole* (wild field. The steppe-land and the river district, to this day, bear the famous name of Zaporoze (land below the rapids).

The Pontian steppe-plain is bounded on the north by the spurs of the Bessarabian, Podolian, Dnieper and Donetz Plateaus. On the south, by the sea-shore and the country at the foot of the Yaila Mountains, in Crimea. Past the Danube deltas the steppe-plain merges into the exactly similar steppe-plain on the Kuban.

The surface of the steppe-plain is exceptionally flat, slightly undulating only at the northern border, where the transition to the southern spurs of the Ukrainian plateau group proceeds imperceptibly. Innumerable barrows (mohyla) are as characteristic of the landscape of the Pontian Steppe-plain as the flat plate-shaped depressions of the ground, with small temporary lakes, the swampy flat valleys and the small salt marshes with their peculiar vegetation.

The many balkas, which divide the steppe-plain into innumerable low plateaus, do not affect the grand uniformity of the steppe landscape very much. As in the neighbor-

ing plateaus, they are cut in deep, but do not become visible to the traveler until he comes directly upon them. The pliocene steppe-lime which predominates in the entire steppe-plain, covers the sarmatian and Mediterranean strata, and reveals the crystalline substratum only in the west of the Dnieper in the neighborhood of the Dnieper Plateau, and forms rocky cornices on the slopes of the balkas. Lesser tectonic disturbances, in the shape of anticlinals and synclinals, have affected these youngest tertiary formations also. They are covered by a mantle of loess and black earth, which becomes constantly thinner toward the south. The typical chornozyom gives way, south of the parallel of Kherson, to the brown, also very fertile steppe-soil, which is accompanied in long stretches, however, by the saline earth. To the east of the Dnieper, at the southern spurs of the Donetz Plateau, the crystalline substratum also appears to a great extent, in banks of rock, in the midst of the steppe-plain.

Only along the large streams of the steppe country does the nature of the land change. Their valleys are broad and swampy, covered by the so-called *plavni.* Interminable thickets of sedge and seeds, marsh forest and meadows, together with innumerable river branches, old river beds, and small lakes, make up a beautiful, fresh, verdant country in the midst of the boundless steppe, whose vernal dress, resplendent with blossoms, turns yellow and blackish-brown in summer and fall, from the fierce glow of the sun.

## Streams and Rivers of the Ukraine

The Ukrainian rivers are genuinely typical of Eastern Europe. The great uniformity of the surface configuration of the Ukraine is responsible for the lack of that variety in its own river system which characterizes the waters of Western and Central Europe. But the great extent of the land does cause the Ukraine to have mountain, plateau and lowland streams, so that it does not attain the degree of uniformity in hydrographic conditions of Russia proper.

The Ukrainian river system concentrates in the Black Sea. From northwest, north and east, the rivers of the Ukraine tend toward its sea. Besides, the western boundary lines of the Ukraine lie on the Baltic slope. There, in Podlakhia, in the Kholmshchina, on the San River and in the Lemko country, the Ukrainian people has had its seats since the dawn of its history. In most recent times Ukrainian colonization has gained also parts of the Caspian slope on the Kuma and Terek Rivers. But the region drained by the Black Sea surpasses both the other regions so much in extent and in the size of its rivers, that the Baltic and Caspian region of the Ukraine dwindle in comparison. Nature has, therefore, turned the Ukrainian nation toward the south and southeast to the Black Sea. But, at the same time, she has not denied the Ukraine a convenient connection with the north and south of the globe. The main European river divide is, perhaps, nowhere so flat and so easy to cross as in Ukrainian territory. From the Dniester to the San (bifurcation of the Vishnia creek near Rudky), from the Pripet to the Buh and Niemen the passages are easy. Since ancient times portages have

existed here, and in modern times the Pripet has been connected with the Buh and the Niemen by means of canals (King's Canal and Oginski Canal) which, however, are at present entirely antiquated and almost useless. Besides, the widely branched water system of the Dnieper outside the Ukraine affords easy passage to the Dvina (Beresina Canal), Volga and Neva, in White Russian territory. Over these waterways and the portages lying between them the old path of the Northmen led from Scandinavia to Constantinople. This most important aspect of the Ukrainian water system promises at some future time to bear rich fruit, if the recently-formed plan to build a waterway for navigation on a large scale, from the Baltic to the Black Sea, utilizing the course of the Dnieper, should become a reality.

The *Baltic watercourses* of the Ukraine flow into the Vistula. Several large Carpathian tributaries originate in Ukrainian territory. Here the rapid Poprad carries the melted snow of the Tatra to the Dunayetz. The source of the Visloka also lies in the Ukrainian Lemko country. The last and largest Carpathian tributary of the Vistula belongs, in three-fourths of its extent, to Ukrainian territory, namely, the navigable San. It receives from the Carpathians the Vislok on the left and the Vihor on the right. The other tributaries of the San on the left side, the Vishnia, Sklo, Lubachivka and Tanva, come from the sub-Carpathian country and the Rostoche Plateau.

All the Carpathian tributaries of the Vistula have only at their sources the character of mountain streams, with swift currents, in rocky river beds, lined by banks of water-worn material. Even in the mountains their valleys become wide, covered with banks of pebbles, sand and loam, and overgrown with willow-brush, and their falls insignificant. In the sub-Carpathian country the banks become low and sandy, the stream slow, and the water-

level is very unsteady, owing to the cutting down of forests in the country of the source. In spring, when the snow melts in the mountains, and at the time of the early summer rains, there are terrible floods; in dry summers the rivers dwindle to almost insignificant proportions.

From the Rostoche the Vepr, navigable from Krasnostav down, flows thru a broad, marshy valley, into the Vistula. The northern declivity of the Podolian Plateau sends its largest river, the Buh, navigable from Sokal on, down to the Vistula. This river is really a genuine lowland river. Its valley is wide and flat, the river winds with its muddy bed thru forest marshes, thickets of reeds and willow brush, now parting into a dozen branches, now flowing in a wide bed, past fresh, green meadows and dark forests. The same lowland character is a common quality of the left-hand tributaries of the Buh, the Poltva, Rata, Solokia, Krna and of the Luha on the right hand. The Mukhavetz, Lisna, Nurez and Narva, on the other hand, are typical woodland streams, which roll their great mass of water thru the forests of Podlakhia.

*The Pontian Rivers* of the Ukraine belong to the six great regions drained respectively by the Danube, Dniester, Boh, Don and Kuban.

Of the great region drained by the *Danube*, only the Carpathian country of the sources of the Theiss, Sereth, and Prut lie within Ukrainian boundaries. The Theiss is formed by the junction of two source-rivers near the Svidovez and the Chornohora, and collects all the rivers of the Ukrainian country belonging to Hungary—the Visheva and Isa on the left, the Torez, Talabor, Velika Rika, Berzava and Bodrochka, which consists of five source-rivers (the Latoritza, Uz, Laboretz, Tepla and Ondava). All these rivers of the Hungarian-Ukrainian mountain country break their difficult way in deep, picturesque passes, thru forest-covered mountain chains. Innumerable

rafts carry the trunks of the fallen Carpathian giants into the treeless plains of Hungary. Here, too, the rivers suddenly lose their mountain character; their currents become sluggish, their waters turbid, their banks swampy.

Of the Sereth and its tributaries, the Sochava and Moldava, only the sources belong to Ukrainian national territory. On the other hand, a considerable part of the Prut country lies within it. The Prut River rises at the Hoverla, where it forms a beautiful waterfall along the crater walls. Then it flows in a picturesque defile toward the north, forms another waterfall at Yaremche, then immediately leaves the mountains, uniting in the sub-Carpathian hill-country with the roaring Cheremosh, which also rises in two source-rivers on the slopes of the Black Mountains and flows in a deeply-cut meandering valley thru the beautiful Hutzul country. In the sub-Carpathian country the Prut has a wide, flat valley, taken up in places by marsh meadows. The river winds down the wide valley in countless twists, forms side branches and old river beds, and reaches the Danube in the midst of liman-like lakes and bogs, not far from the swampy delta. Outside of the mountains, the Prut receives only insignificant tributaries of small volume. Between the Danube and the Dniester we see only a few miserable little steppe rivers, emptying into salty or bracken liman lakes (*e. g.*, the Yalpukh and the Kunduk Rivers).

The important *Dniester River* attains a length of over 1300 km., and possesses the greatest variety of distinct sections of river of all the Ukrainian streams. It originates in the High Beskid, near the village of Vovche, as a very energetic, wild creek. In a defile it advances into the sub-Carpathian hill-country, where it has deposited great masses of rubble. The mountain stream changes rapidly into a lowland stream and forms great swamps in the Dniester Plain, which, in high-water time, are converted

into large river lakes. From the left bank, the Dniester here receives the muddy Vereshitza (from the Rostoche), which forms many ponds, from Western Podolia, the Hnila Lipa. All the remaining tributaries of this section of the Dnieper come from the Carpathians, on the left the Strviaz (Strivihor), on the right the Bistritza, the mighty meandering river Striy with the Opir, and the Svicha (with the Misunka). All these rivers are mountain streams, flow in beautiful defiles, and deposit great masses of rubble on the verge of the Carpathians. Beginning at the delta of the Svicha, the Dniester Plain becomes a wide, flat-bottomed valley, in which the river flows along in great bends and receives the Limnitza and both the Bistritzas from the Carpathians. Near Nizniv the banks approach each other very closely and the Dniester enters a yar (cañon), not leaving its steep sides until near Tiraspil. The Podolian tributaries of the Dniester on the left side, the Zolota Lipa, Stripa, Sereth, Zbruch, Smotrich, Ushitza, Murakhva, Yahorlik, roll their turbid waters in similar cañons toward the Dniester. The Bessarabian tributaries, on the contrary, have wide, swampy valleys. All these plateau rivers are slight in volume of water, altho some of them attain considerable length. Only in the spring, when the snow-blanket melts, do their waters overflow the banks. In summer the water-level becomes very low, and the water of the early summer showers is stored up in the many ponds, which are found in large numbers, in the country about the sources of these rivers. All these plateau rivers are not even navigable for rafts; even the little fishers' boat can hardly find its way along the muddy shoals.

In its cañons the Dniester River assumes all the characteristics of a plateau river. Its waters generally take up the entire bottom of the cañon, leaving very little space for the abodes of men. The incline of the river

is not uniform, but constitutes a series of slight steps. Sections with rapid currents alternate with quiet depths. The small brooks which come down the short lateral gorges of the Dniester cañons bring great masses of loose stones and rubble into the river bed, as a result of the reckless destruction of forests, and build constantly growing cones of rubble, which the river must remove slowly and laboriously. They also form dangerous shoals and hinder the development of navigation on the Dniester. The river also forms regular rapids, near Yampil, where a layer of granite stretches clear across the river. For this reason the Dniester, tho navigable along a stretch of almost 800 km., has not become an important waterway. The navigation of the Dniester, which becomes more active from Khotin on, is now on the wane. Eight hundred years ago sea vessels were still able to reach the old Ukrainian royal city of Halich.

The floods of the Dniester are famous. In the spring, when the snows melt in the Carpathians, the Dniester Plain is converted into a great river-lake. The Carpathian tributaries bring the main stream so much water, that it it cannot easily flow off thru the narrow cañon, and so, floods the whole wide Dniester Valley for weeks. Then there is high water even in the cañon of the Dniester, but it has little scope.

Near Tiraspil, the Dniester Valley widens out again. Swampy *plavni* wilds extend on both sides of the river. In a beautiful, rapidly growing delta, the Dniester empties into its liman, which it is slowly filling in with its precipitates. Two narrow outlets (hirló) break thru the bar of the liman and connect it with the sea.

Between the Dniester and the Boh, not one river finally empties into the sea. Even the largest rivers of the region, the Little and Big Kuyalnik and the Tilihul end their courses in limans, which are entirely closed off by bars.

The valleys of these coastal rivers are narrow, becoming wider at last, when they are about to enter the limans. The current is always slow and the water often evaporates completely in the summer.

*The Boh*, falsely named the Southern Bug, is a real plateau river. It rises in the village of Kupil, near the source of the Sbruch, on the Austrian border, and flows as a typical Podolian mud-streamlet, in a flat valley, covered with ponds and swamps. But, beginning at Mezibiz, its bed becomes rocky, the valley slopes become high and keep approaching each other. The Boh Valley gradually becomes a cañon-like "yar," altho it is at no point so deep as the Dniester Valley. The granite-gneiss formations of the Ukrainian horst appear here as picturesque shore rocks and slopes along the river and form innumerable rapids (as, for example, Constantinivka) in the river bed. Stony beds and narrow, rocky valleys are also found in the most important tributaries of the Boh—the Sob, Siniukha, Inhul on the left; the Kodima and Chichiclea on the right. All of them have little water, and in dry summers only a chain of ponds marks the valley road of the river. The main stream, too, has not much water, being unfit for navigation even in the time of the spring floods. Only the last 130 kilometers of its course, from Vosnesensk down, are navigable. At the entrance of the Inhul the Boh begins to widen considerably, the current becomes slow, and the depth at Mikolaiv sufficiently great to enable smaller sea vessels to reach its harbor. Slowly widening, the river gradually turns into the Buh liman, which has the winding outline of a river and unites with the great liman of the Dnieper. The entire length of the Boh is over 750 kilometers.

We now come to the main river of the Ukraine, the majestic Dnieper. To the Ukrainian people the Dnieper bears the same significance as the "Matushka Volga" to

the Russians, the Vistula to the Poles, and the Rhine to the Germans. The Dnieper is the sacred river of the Ukraine. Like a divinity it was honored by the old Polans, the founders of the ancient Ukrainian state of Kiev; Slavutitza was the name given it by the Ukrainians of the monarchy. It was esteemed as a father and provider by the brave Zaporog Cossacks, the champions of Ukrainian liberty. For many centuries the Dnieper has played an important part in the folk-lore and literature of the Ukraine, in traditions and fairy-stories and folk-tales and in thousands of folk-songs; since ancient times it has been sung by all Ukrainian poets, from the unknown bard of the epic of Ihor, to the greatest of all Ukrainian poets, Taras Shevchenko, and so on, down to the youngest generation of the poets of the Ukraine. To them all, the Dnieper is the symbol of the Ukraine, of its life, and of its past. Not without cause did Shevchenko ask to be buried on the mountain shore of the Dnieper, "that I may see the endless plains and the Dnieper and the crags of its banks and hear the rushing of the Rushing One." For no one is able to repeat the impressions which fill the soul of every Ukrainian when he looks down from this beautiful observation point of Shevchenko's grave upon the majestic river below. How many thoughts, then, arise about the glorious, and yet so unspeakably sad, past of the Ukraine, about its miserable present and the great future toward which the nation tends, amid great difficulties, as does the Dnieper toward the Black Sea over the porohs. And we do not wonder that the Dnieper has become the national sanctuary of the Ukraine. With this river are connected all the important events of the historical life of the Ukraine. The Dnieper was the father of the ancient Ukrainian empire of Kiev; by way of the Dnieper a higher culture made its way into the Ukraine; on the Dnieper the Ukrainian Cossack element developed, which, after centuries of

subjugation, gave the Ukrainians a new government. The Dnieper River has, since hoary antiquity, been the most important channel of intercourse between the North and the South of Eastern Europe; it has been the means of connecting the Ukraine with the sea and the cultural realm of Southern Europe. Its present importance, despite the low grade of culture in Eastern Europe, and despite Russian mismanagement, is great, and is growing rapidly. And if in the future the river is made accessible to sea-going vessels and becomes a road for large-scale navigation, its significance may become almost incalculable.

The Dnieper is the third largest river in Europe, after the Volga and the Danube. The length of its course is more than 2100 km. The region it drains includes 527,000 sq. km., not much less than the whole of France. Among the streams of the globe the Dnieper ranks thirty-second.

If the Dniester possesses some of the properties of a Central European river, namely, mountainous country at its source and many mountain tributaries; if the Boh is a genuine plateau river; the Dnieper, on the other hand, is the real type of a river in Eastern Europe. It rises in White Russia near the village of Clozove. A little swamp, which was formerly a small lake, situated at a height of 256 m., forms the source of the river. Because of this small height of the source, the Dnieper has, as, in fact, all the Eastern European rivers have, a very insignificant incline and an average speed of current of 0.4 m. per second. The source of the Dnieper lies near the sources of the Dvina and the Volga, as well as the source streams of the Neva.

Near its source the Dnieper is a small, muddy streamlet, which seeks its way southward in a flat valley, three miles wide, between swamps and moors. But quickly its volume increases, and, as near the source as Dorogobuz, the river becomes navigable for smaller vessels. Here it suddenly

turns to the west, both valley slopes, but especially the left one, become higher and steeper, the valley narrows down to ½ km. But after a short stretch it becomes wide and swampy again at Smolensk. The depth of the river is very irregular, the pools (plessa) attaining a depth of 5 meters, the rapids often less than ½ meter. From Smolensk to Orsha the Dnieper Valley again becomes hardly 1 kilometer wide, between high banks. On the left bank picturesque, rocky precipices appear. At Orsha the Dnieper turns to the south, retaining this direction as far as Kiev. Down to Shclov the Dnieper Valley remains narrow, with steep slopes, then it widens slowly but steadily. The depth of the river reaches 10 meters, but many shoals, great morain boulders and broken sandstone make navigation difficult. Below Mogilev the spurs of the White Russian and Central Russian plateaus withdraw from the Dnieper and show only on the left side. The river reaches the low plain of the Polissye and flows in majestic turns thru swamps and meadows which are dotted with old river beds. In this section of its course the Dnieper receives the Druch and the voluminous, navigable Beresina on the right, and the navigable Soz on the left. The Dnieper receives an especially great amount of water from the Beresina. River navigation is doubled below its entrance, mainly because of innumerable rafts which are traveling to the treeless South Ukraine and the Black Sea from the forests of White Russia.

From the mouth of the Soz numerous low islands appear in the bed of the Dnieper. The river divides into numerous branches. The entire trough lying between the Dnieper and the Pripet is a labyrinth of river branches, lakes, old river beds, swamps and fens. Thru the Pripet the volume of the Dnieper River increases twofold, and very seldom flows along in a single bed.

The tributaries on the right side, the Teterev and the

Irpen, bring the Dnieper the first remembrances of the Ukrainian plateau country, and soon its spurs appear on the right river bank. The Dnieper presses against this bank and forms the picturesque precipices above which glisten the gilded domes of the ancient churches of Kiev. Here the Dnieper receives the largest of its tributaries on the left, the navigable Desna. Thus the formation of the Dnieper River is completed, its source-rivers, the Pripet, Beresina, the upper Dnieper, the Desna and the Soz have united to build a majestic stream. Its normal average width is 600—850 meters near Kiev. During the spring floods, however, the width of the river exceeds 10 km.; from the high, right bank one can barely see the woods of the left. All the islands, sand-banks, swamps, meadows, river branches and old river beds disappear beneath an interminable mass of yellowish water, rolling slowly toward the south. Deep into the valleys of the tributary streams the high-water enters, and receding, leaves behind a layer of fertile river mud. Not without reason did Herodotus compare the Dnieper with the Nile.

The floods generally occur but once a year—in the spring, when the snows melt. In this respect the Dnieper differs from the Dniester and is similar to all the other rivers of Eastern Europe. In the early summer, at the time of the greatest precipitation in the Dnieper country, small floods occur only occasionally, because the rain-water is stored up in the many swamps and moors of the upper Dnieper country. The spring high-water originates in the great masses of snow, which remain lying all thru winter, melting and flowing off all at once in the spring. After an ice-drift lasting 5—12 days, the high-water comes and lasts a month and a half. It attains its highest level in the middle of April; at this time the water stands at 3.2 meters above normal at Mogilev, 2.2. meters at Kiev, 2.6 meters at Kreminchuk, 2 meters at Kherson, 0.3 meters

at the delta. The spring floods are at present becoming greater and more irregular, consequently more dangerous, too, than they have been previously. The progressive destruction of forests has contributed most to this condition.

From Kiev down, the Dnieper River turns in a flat curve to the southeast and retains this direction as far as Katerinoslav. The right bank remains steadily high, torn by gorges and crowned with rock formations, with numerous niches, which betray former places of contact of the river bends. The view, defended especially by Russian scholars, that the mountain bank of the Dnieper, like that of all other Eastern European rivers, originated thru the influence of the rotation of the earth (Baer's Law), notably does not apply to the Dnieper, for the plain on the left very distinctly crosses over to the right shore at three places; at the mouth of the Stuhna below Kiev, between the mouth of the Ross and Cherkassi, and north of Chihirin. Recent movements of the crust of the earth, by elevating the Dnieper Plateau in huge sections, prepared the ground for the mountainous shores; the resulting steep declivities were attacked and transformed by the river current, aided by an effective simultaneous action of the winds.

The left bank of the river is very flat, taken up by swamps, lakes, old river beds and wooded fens. Great wildernesses of reeds cover the swampy banks of the numerous river arms. Great masses of sand brought by the tributaries on the left side are thrown up by the steppe winds and from dune landscapes in various places.

The tributaries of the Dnieper River in this section are of far less importance than the above mentioned northern ones. From the right side the river receives the plateau streams Stuhna, Ross and Tiasmin, from the left the Trubez, the Supo, the Sula with the Udai, the Psiol with the Khorol, and Holtva, Vorskla and Orel. All these rivers increase the volume of the main stream only to a slight

degree. The width of the river at the point where it flows along in a single bed is regularly 1 km. on the average; at the narrowest part, to be sure, only 150 meters. Where the river branches off into several forks, however, the complete width, even at the time of low-water, is more than 4 km., at high-water over 8 km. The depth of the river, too, is very changeable. The tributaries on the left side bring great masses of sand to the main river bed, forming great banks of sand, which slowly move downward and cause great changeability of the depth. Over such banks of sand the depth of the river is hardly 1½ meters, but attains a depth of 12 meters where the river flows in a narrow bed.

Between Kiev and Kreminchuk, the majestic character of the Dnieper River is most apparent. The slight incline here causes a current of only one-third the speed of the current of the Volga. With an impressive calm the waters of the Dnieper flow along; it seems as tho the mirror-like mass of water were motionless. But soon, above the mouth of the Psiol, the speed of the current is suddenly tripled, so that the steamboats must exert their entire force in the up-stream trip. The low left bank begins slowly to rise; the river valley, up to this point, wide almost beyond reach of the eye, becomes narrow, the river forks and islands gradually disappear, and at the mouth of the Samara both banks approach the stream with steep precipices. The direction of the river becomes southerly and the section begins where the Dnieper breaks thru the granite ledge of the Ukrainian horst, the famous section of its rapids.

Here the Dnieper assumes all the characteristics of a plateau river. The river valley becomes so narrow that at high-water the river spreads over the entire valley bottom. The settlements take refuge on the heights of the steep bank. The granite-gneiss sub-layer appears in

steep precipices and high picturesque rock formations on the valley slopes. We are confronted with the same cañon-like valley on the Dnieper, then, as on the Dniester in the Podolian Plateau. Yet there are certain fundamental differences. The river valley is at most 100 meters deep, and the granite slopes do not form compact valley sides such as we see in the yars of the Dniester. At every moment the steep decline is broken by numerous gorges, picturesque foothills; and jutting cliffs lend to the river landscape of the Dnieper Valley, at this point, a variety unknown in the yar of the Dniester.

The section of the Dnieper River from the mouth of the Samara to Veliki Luh, at the mouth of the Konca, forms a river country which is the only one of its kind in Eastern Europe. It is the section of the Dnieper rapids. The post-tertiary elevation of the Ukrainian horst, at this point, has forced the river to dig its bed into the hard granite and gneiss rocks. Despite great masses of water, the river has not succeeded in equalizing its incline. For this reason, we find in its bed innumerable rocky islands, ledges of rock, separate cliffs and great boulders. In a wild, roaring torrent, the current beats against these obstacles, creating deep pools and dangerous vortices. But not at all places was the river destined to saw thru the obstacles in its way. At many points solid ledges of rock lie right across the river. Its mass of water falls down over these granite steps in immense foam-wreathed bilows and seethes about innumerable boulders, remains of already parted ledges. The dull roaring and rumbling can be heard, even by day, for several miles. These are the rapids of the Dnieper—the "porohi" and "zabori."

The porohi are not real waterfalls or cataracts; the incline of the river in this section is 35 meters for a stretch of 75 km., and is, therefore, too slight for regular falls. The greatest incline attained within this stretch of river is

6%. Therefore, only the individual branches of water between boulders form small falls, while the main channel only shoots along down-stream in a long, foam-covered streak, over the inclined surface of the ledges. In summer, the depth above the rock ledges is barely 1½ meters, while in the spring even the highest reefs of the rapids disappear beneath the masses of the high-water.

Still, the rapids of the Dnieper are even now a great hindrance to navigation. Within the porohi section, steamboat navigation is altogether impossible, and the smaller rowboats or sailboats can risk it only during the spring floods, and then only the down-trip. Only the rafts can pass thru the porohi at low-water time, altho with great danger. The up-stream trip is almost impossible, even in the smallest vessel, altho, at one time, everyone who desired to join the Zaporog Cossacks was required to undertake this daring enterprise.

The Russian government has attempted, indeed, to make the rapids of the river navigable, and has caused a navigable canal to be formed at each fall, thru blasting of the rock ledges. But these canals have been planned in so impractical and even faulty a manner that the river pilots (*lotzmani*) still use the old "Cossack paths" to a great extent (the *Cosachi khody*) to bring river boats and rafts thru the porohi.

The width of the river in the rapids section remains unchanged—1 to 1¾ kilometers. Only at its exit from the porohi, at the so-called Wolf's Throat (*Vovche horlo*), the river narrows down to 160 meters. The quiet sections between separate rapids are usually very wide and as much as 30 meters deep.

Of genuine rapids (*porohi*), according to the pilots, who are direct descendants of the Zaporog Cossacks, there are nine; of the larger *sabori* (ledges of rock which do not obstruct the entire width of the river), six. The first rapids

below Katerinoslav are the Kaidac rapids (*Kaidazki porih*), with four ledges of rock. Then follow the Yazeva Sebora, the Little Sursky porih, with two ledges, the dangerous Lokhanski porih with three ledges, and the Strilcha Sabora, with the great rocks of Strilcha skela and Kamin Bohatir. The next rapids, Svonez and the far-sounding Tiahinska Sabora, allow vessels easy passage, but after passing thru the Dnieper the pilot must exert all his strength. Even from the Svonez rapids on, one can hear the terrible roaring and rumbling of the largest of the porohi, the Did (grandfather) or Nenassitetz (insatiable). Masses of white foam cover it completely, the water shoots down over the twelve ledges of rock with the speed of an arrow. The vessel groans and creaks, but flies thru the porih in three minutes, if it can only escape the dangerous rock of Krutko or the terrible whirlpool of Peklo (the Hell). Or it may happen that the ship is dashed to pieces in the Voronova Sabora, which is full of dangerous reefs.

After the Did and the insignificant Kriva Sabora, comes the Vnuk (grandchild) or Vovnih, whose four ledges, covered with great billows and masses of foam, holds many hidden dangers for the sailor. But "after overcoming the Grandfather and the Grandchild, don't go to sleep, for the Awakener will wake you"—meaning the next following Porih Budilo (Awakener) which also is dangerous for ships. We then come past the Tavolzanska Sabora, where the beautiful crag (Snieva skela) rises, to the next to the last porih, Lishni (the Dispensable), with two insignificant edges of rock, which offer but slight dangers. The last porih, however, which bears the name of Vilni (free) or Hadiuchi (serpent falls), is very dangerous for ships and rafts, for the channel winds in serpentine twists thru the six ledges, and the pilot must exercise all his skill in order to steer the ship entrusted to him safely thru the dangerous channel. After this follows the narrow

(160 m.) "Wolf's-Throat" (Vovche horlo), with three great rocks; the small Javlena Sabora, three dangerous "Robber Rocks" (Kameni Rosbiyniki), and two granite precipices, Stovli (Pillars), and we come into the Zaporog country (Zaporoze).

Here the Dnieper valley widens and numerous islands appear in the stream. The upper ones, for example, Khortizia and Tomakivka, which were once the site of the first Zaporog Sich, are high, rocky, and overgrown with forest. Further south the steep left-hand valley slope recedes far from the river and the so-called Veliki Luh begins. It is a labyrinth of flat forest and reed-covered alluvial islands, river branches, old river beds, lakes and swamps. Here were located the hunting and fishing grounds of the Zaporog Cossacks; here was their dwelling place, wonderfully fortified by nature and surrounded by an inaccessible wilderness of forests and waters, and the center of their military state; of the century-old oaks of the Veliki Luh, the Zaporogs built their ships, in order to pay their daring visits to the lord of Islam in his own capital. But the glorious days are past, the warlike life and activity has disappeared, and strange colonists, whom the Russian Government has sent here to settle, now occupy the ground on which the second Ukrainian state originated.

From the many-branched mouth of the Konka (also named Kinska voda) the Dnieper River turns toward the southwest, which direction it retains until it disembogues into the sea. From this point on, the river nowhere flows in a single bed; an enormous number of side arms branch off from the main arm or unite with it. The broad river valley, whose right bank continues to be high and rocky for a time, is taken up by the plavni formation and winds like a broad band of freshly growing verdure thru the steppe, which stretches out dry and golden-brown in the hot mid-

summer. After receiving, as its last tributary, the steppe-river Inhuletz, it empties with nine arms into its liman, below Kherson. Of these arms only two are navigable for larger vessels, and the immense Dnieper liman is at most only 6 meters deep. The river brings down great masses of sand and mud, and fills up its liman so rapidly that strenuous dredging is necessary, in order to make it possible for small sea-vessels to reach the harbor of Kherson.

The Dnieper River brings the Black Sea, on the average, 2000 cu. m. of water per second. It is navigable, even for large river boats, along a stretch of 1900 km. The ice-cover lasts 100 days at Kiev; 80 days in the lower part of its course.

The tributaries of the Dnieper are very numerous and important; their total length is over 13,000 km. Of those on the right, the Pripet River is the most important. It gathers in all the waters of the Polissye and is the typical river of that district. Its length exceeds 650 km. Rising in the northern spurs of the Volhynian Plateau, very close to the course of the Buh, it immediately reaches the Polissian Plain and becomes a navigable river over 50 m. wide and about 6 m. deep. In the main axis of the Polissian basin the Pripet turns eastward and becomes about 100 m. wide. The incline of the river is very slight, the number of turns and river arms enormous. Between swampy woods and moors the river forms labyrinths of delicate, intricate waterways and stagnant pools. Near Mosir, where the river turns to the southeast, its width reaches 450 m., its depth 10 m. Of quite the same type are the tributaries of the Pripet: the Turia, Stokhod, Stir with the Ikva, the Horin with the Sluch, the Ubort and the Uz on the right; the Pina Yasiolda, Sluch and Ptich on the left. All of them are navigable along great stretches. The remaining right-hand tributaries of the Dnieper, the Teterev and the Irpen, have the Polissian character

only near their mouth, otherwise they are purely plateau rivers with rocky beds. The Teterev is able to transport rafts of logs, while the other rivers of the Dnieper Plateau, as for example, the Ross (altho greater than the Teterev) and the Tiasmin, are entirely unfit for navigation, as a result of their rocky beds and their small volume in summer. The last large Dnieper tributary, the steppe-river Inhulez, altho barely 100 km. shorter than the Pripet, is, for the same reasons, only capable of carrying logs in the last 150 km. of its much-twisted course.

Of the left-hand tributaries of the Dnieper only the northern ones possess a sufficient volume of water to be navigable. The Soz, which is 550 kilometers in length, becomes as wide as 150 meters, and is navigable for a stretch of nearly 360 kilometers. The Desna is the longest of all the Dnieper tributaries (1000 km.). It rises near Yelnia, on the Central Russian Plateau, and flows in a broad symmetrical valley, which it floods in places every spring to the extent of 10 kilometers. The normal width of the river at low-water is 160 meters; the depth is 6 meters. Despite many shallows and sand-banks, the Desna is capable of bearing rafts along a stretch of 250 kilometers, and is navigable for 700 kilometers even for the larger river boats. Of the Ukrainian tributaries of the Desna, the most important is the Sem, which is 650 km. long and navigable for 500 kilometers.

All the other left-hand tributaries of the Dnieper flow in broad valleys, with high right slopes and low left slopes, covered with stagnant waters, marshy meadows and areas of sand. But, altho they all look very imposing at the time of the spring floods, yet, neither the Sula with its high wooded banks, nor the Psiol with its 670 km. of length, neither the Vorscla flowing along between sand-banks and dunes, nor the Orel sliding slowly along with its twisted course—none of these have any significance for

navigation. Only the steppe-river Samara, flowing between granite banks, is capable of floating rafts along a short stretch. There was a time, however, in which all these rivers were navigable, even for ships of considerable size. Great old anchors and wreckage of ships, which are found in the beds and banks of these rivers, are sufficient proof of this fact. The cause of the present condition may be sought in the destruction of forest in the drainage country. The spring floods, increased from this cause, develop considerable destructive activity, filling up the river bed with masses of sand and mud, floating brushes and stumps of trees. The decreased volume of water in the dry season, due to the drying up of the swamps and springs, can not transport these deposits further, and the river becomes unfit for any sort of navigation.

*The Don* (Din) is the fourth in the series of rivers of Europe. It is over 1800 kilometers long, but the country it drains is smaller in area by 100,000 square kilometers than that of the Dnieper. Hardly one-fourth of the Don country belongs to the Ukraine, and even less of its course. For this reason it was long considered as a border stream of the Ukraine on the east, until the past century extended the boundaries of Ukrainian territory into the Kuban region and to the Caspian Sea.

The Don rises in Lake Ivan-Ozero, which has also an outlet to the Aka on the Central Russian elevation of ground. Its valley is at first deeply cut, its bed rocky. Then the valley widens and becomes symmetrical, the left bank becomes flat and swampy, covered in places by wide areas of sand. In the source region the direction of the river is south as far as Korotniak, then the river turns to the southeast, forms a sharp bend at the mouth of the Ilovla, approaching to within 60 km. of the Volga. Then the Don repeats on a small scale the direction of the course of the Dnieper, turns toward the southwest, and disem-

bogues in thirty arms, of which only three are navigable and only one accessible to sea-vessels, into the Sea of Azof. Its delta region is very rich in fish and is growing very rapidly. The general volume of the Don is twice as small as that of the Dnieper and is subject to many vacillations. During the spring floods the water-level reaches 6—7 m. above the normal and the river becomes as much as 10 km. wide. At the time of low-water, on the other hand, the river, despite its width (in the lower part of its course) of 200 to 400 m. and depths of 2—16 m., is full of sandbanks and shallows, so that navigation on the Don is but slightly developed, altho more than 1300 km. of its course may be considered fit for floating rafts of logs and 300 km. for ships. The freezing-time lasts on the average 100 days.

Of the left-hand tributaries of the Don, the Voronizh, Bitiuh, Khoper, Medveditza, and the Manich (famous, because of its bifurcation) are the most important. Of the right-hand tributaries only one, the Donetz, is important. Its entire course belongs to Ukrainian national territory. It is 1000 km. long, and, in its southerly and then south-easterly direction, entirely analogous to the Dnieper and the Don. The Donetz flows in a broad valley and washes beautiful white cliffs along the steep right bank, crowned with dark forests. The Donetz is capable of floating rafts along a stretch of over 300 km., and is navigable for 200 km. more.

Of the steppe-rivers which tend toward the Sea of Azof from the east, only the Yeia reaches its goal. All the rest end their courses in lagoons.

The last great river of the Ukraine is the Kuban, 800 km. long. It rises in the glaciers of the Elbus and flows, a roaring mountain stream, in a narrow and deep rocky defile. A great number of the mountain streams of the northern Caucasus slope empty into the Kuban and

make it a stream of considerable volume. In the Stavropol hill country the Kuban turns in a widely-drawn curve toward the west. Its valley becomes broad and flat, covered with bogs, swampy forests and wildernesses of reeds. From the left side it receives a number of tributaries from the Caucasus, the most important being the Laba and the Bila. In the midst of immense plavni, lakes and limans, the Kuban forms its many-armed delta, which carries its waters partly to the Black Sea, partly to the Sea of Azof, and embraces the peninsula of Taman.

The Kuban always has a large volume, the floods coming in the early summer, when the snow blanket of the Caucasus melts. Navigation is greatly injured because of banks of sand and rubble, brush and tree-stumps, but is, nevertheless, possible for a distance of over 350 km.

## The Ukrainian Climate

The great uniformity of Eastern Europe, in respect to its morphology, we find repeated in its climatic conditions. But, to the same extent that the attentive investigator, upon close observation, finds several independent morphological individualities within the Eastern European low country, he will also observe important climatic differences in this great half-continent.

The Central European climatic zone stops at the western borders of the Ukraine. Similarly, the cool Eastern European continental climate, which rules over all of White and Great Russia, embraces only insignificant borderlands in the north of Ukrainian territory. The Ukrainian climate assumes an entirely independent position. It is more continental than that of Central Europe and differs from that of Great Russia in its greater mildness. The Ukraine shares with France the advantage that in its territory the direct transition from the temperate climate of Eastern Europe to the Mediterranean climate of Southern Europe takes place.

The thermal conditions of the Ukraine, despite its great size, are very uniform. The yearly averages fluctuate between +6° and +9° C. Ternopil, in Podolia, and Vovchansk, in the Kharkov country, have the same yearly temperature of +6.3°, Pinsk +6.7°, Kiev and Kharkiv +6.8°, Lviv (Lemberg) and Poltava +6.9°. The differences are confined within a space of 1° C. Chernivtzi (Czernowitz) in the Bukowina, Yelisavet in the Kherson region, and

Luhan in the Donetz region have an annual temperature of 7.6° or 7.7°, Katerinoslav on the Dnieper, Tahanroh on the Sea of Azof, and Stavropil in the sub-Caucasus country 8.3° or 8.2°. This great coincidence of yearly averages in so widely separated places is all the more surprising, since the mean temperature falls considerably directly behind the borders of the Ukraine. Thus, Kursk has only +5.2°, Voroniz +5.4°.

Not until we reach the southern borders of the Ukraine does the mean temperature rise considerably. Odessa and Kishiniv have +9.8°, Mikolaiv +9.7°, Simferopil +10.1°, Sevastopil +12.2°, Katerinodar +12.1°, Novorossiysk +12°, Yalta +13.4° mean annual temperature. The last-named place actually lies in the narrow belt of the Mediterranean climate, on the southern slope of the Yaila Mountains.

Comparing the annual averages of the Ukraine with those of different places in Western and Central Europe, the latter appear relatively much higher. London, situated in the same geographical latitude as Kursk has an annual temperature almost twice as high (+10.3°). London is on the average even a little warmer than Simferopil, which actually lies 650 km. nearer the equator. Brussels lies a little more north than Kiev, yet it is in the mean warmer than Odessa.

The cause of this unfavorable relation is the severe winter of the Ukraine. The mean temperature of January is +3.5° in London, +2° in Brussels, +1.2° in Frankfort a m., —1.2° in Prague, —3.3° in Cracow. In the Ukraine the January means are much lower. Lemberg has —4.6°, Kiev has —6.2°, Kharkiv —8.3°, Luhan —8°, Vovchansk —7.7°, Katerinoslav —7.4°, etc. To be sure this is not remarkable when compared with the January temperatures of even the south of Great Russia, where the winter suggests polar conditions, but the antithesis to the winter climate of Western and Central Europe is striking. Hammerfest,

the northernmost city of the earth, is one degree warmer than Kiev in January and even a little warmer than Lemberg.

On the other hand, the summer of the Ukraine is even warmer than that of Western and Central Europe. The July mean of London is +17.9° C., of Brussels 18°, Lemberg the same, but Kiev has as much as 19.2°, Kharkiv 20.9°. The differences in the summer temperatures are much smaller, however, than the differences in the winter temperatures—hence the comparatively low annual mean in the Ukraine.

These figures clearly show the continental character of the Ukrainian climate. The influences of the Atlantic Ocean, which still strongly dominate the climate of Central Europe, become slight in the Ukraine. Particularly, the southern part of the Ukraine is almost unaffected by the mitigating influence of a nearby ocean, and the necessary result is the low winter-temperatures. But the continental character of the Ukrainian climate is, nevertheless, not so strongly marked as that of the Russian or Siberian climate. Kamishin, Semipalatinsk, Blagovieshchensk, situated on the same degree of latitude as Kiev, have a January mean of —11.6°, 17.5° and —25.4°, and a July mean of +24.1°, +22.2° and +21.3°, respectively. The influences of the Black Sea, altho in general not great, are at least unmistakable in the coastal region of the Ukraine.

The difference between the mean of the coldest and that of the warmest month is slighter in the Ukraine than in Russia or Siberia, to be sure, but it is, at any rate, considerable. Only in the Mediterranean climate of Southern Crimea does the difference amount to as little as 20°. The rest of Crimea, the sub-Caucasian country and the northwestern part of the Ukraine as far as Kiev and Uman have a difference of 20°—25°, Lemberg, for example, 22.6°, Pinsk 24°, Chernivtzi 25.1°, Kiev 25.2°.

On the other hand, the southern and the entire eastern part of the Ukraine, especially east of the Dnieper, shows a considerable difference, from 25° to 30°, as for example, Kiev 25.4°, Odessa and Mikolaiv 26.3°, Poltava 27.3°, Kharkiv and Tahanroh over 29°, Luhan and Katerinoslav 30.4°.

The winter appears severe in the entire Ukraine, with the exception of Crimea and the sub-Caucasian country.

The January mean temperature of —4° to —8° then obtains in the entire wide territory. Lemberg has —4.3°, Tarnopol —5.5°, Chernivtzi —5.1°, Kiev —6.2°, Vovchansk —7.7°, Katerinoslav —7.4°, Mikolaiv —4.3°, Tahanroh —6.7°, Luhan —8°. Even the southern lands of the Ukraine have a low mean for January, for example, Odessa —3.7° (Kishiniv —3.5°), while Kamenetz owes its exceptionally high mean, —3.3°, to its sheltered location in a "yar." The January isotherms run from northwest to southeast in Ukrainian territory, in a wide curve, which becomes increasingly flat toward the southeast. For this reason the cold in the Ukraine grows in intensity not in a northern but in a northeastern direction. The mean annual minimum almost everywhere exceeds —20° (Lemberg —19.2°, Chernivtzi —21.1°, Tarnopol —23.4°, Kiev —23.2°, Mikolaiv —21.4°, Luhan —28.4°). The absolute extremes attain very high values. The absolute minimum amounts to —30° in Mikolaiv and Odessa, —33.1° in Kiev, —34° in Ternopil, —35° in Lemberg and Czernowitz, —40.8° in Luhan.

The Ukrainian winter is far less variable than the Central European or even the Russian. Only in the northwestern borderlands of the Ukraine does a thaw, brought by the Atlantic winds, frequently appear. The duration of the frost on the Pontian shore is at most two months, in the Pontian steppe-plain and the southern spurs of the plateau groups three months, in all the rest of the Ukraine

three and a half. Only in the northeastern borderlands of the Ukraine, located on the spurs of the Central Russian elevation and the Donetz, does the frost period extend over four months.

In Southern Ukraine the winter is followed directly by a sunny spring, with dry east winds, which partly degenerate into sand-storms (*sukhovi*). Everywhere else in the Ukraine wet, sloppy weather follows the steps of the receding winter. Toward the northwest it continues longer and longer. The sloppy weather of spring consists of a constantly varying succession of frost, thaw, snowstorm, rain and sunshine, ending in the southern part of the Ukraine usually in the middle of April, in the northern and northwestern part at the end of April or even at the beginning of May. The actual spring following thereon is very short thruout the Ukraine and usually lasts three weeks, except in the northwest, where it continues thru the entire month of May. The mean April temperature is everywhere higher than the annual mean (Lemberg +7.8°, Tarnopol and Kiev +6.9°, Czernowitz and Odessa +8.6°, Luhan —8.1°). But the month of May is quite as warm as July in England. On the other hand, we find May frosts in the entire Ukraine as far as the shores of the Black Sea, altho they do not appear so destructive here as in Russia proper.

The Ukrainian summer is everywhere marked by considerable heat. Only in the northwest corner of the Ukraine (Rostoche, Pidlassye, Polissye, Volhynia) is the summer moderately warm (Lemberg +19.1°, Ternopil +18.7°, Pinsk +18°).

The July temperature of all the rest of the Ukraine is much higher than this. The July isotherm of +20°, like all the July isotherms of the Ukraine, runs in a northeast direction past the source of the Sbruch and the mouth of the Pripet, and the further we advance from this line towards the southeast, the hotter the summers we find.

On the lower Dniester and Dnieper the mean July temperature exceeds +23°. Following are a number of July means: Czernowitz +20.1°, Kiev +19.2°, Vovchansk +20.3°, Odessa +22.6°, Katerinoslav and Mikolaiv +23°, Luhan +22.4°, Tahanroh +22.8°. The strongest degrees of heat are +37° to +43°, and the mean annual maxima are +30.3° for Ternopil, +31.1° for Lemberg, +32.7° for Czernowitz, +32.1° for Kiev, +35.2° for Mikolaiv, +35.5° for Luhan. The duration of the heat period with temperatures of +20° and over is two months southeast of a line which runs near Kishiniv, Poltava and Kharkiv, one month southeast of the line of Mohiliv, Kaniv and Kursk. The total duration of the summer is only in the northwest of the Ukraine as short as three months; otherwise it is four, and on the Black Sea even four and a half.

The autumn of the Ukraine is regularly very beautiful and comparatively warm. The month of October has a mean of temperature higher than the annual (Lemberg +8.5°, Ternopil +7.7°, Czernowitz +9°, Kiev +7.5°, Vovchansk +7°, Katerinoslav +9.7°, Luhan +8.4°, Odessa +11°, Mikolaiv +9.7°, Tahanroh +9.1°). But even in October the warm sunny days are followed by night frosts. The moist autumnal weather which begins the transition to winter lasts as much as two months in the northwest; beyond that, one to one and a half months. The mean date of the earliest frost is October 19th for Kiev, October 11th for Luhan, October 28th for Micolaiv, and November 10th for Odessa.

A different position, climatically, is that of Crimea, the sub-Caucasian country, as well as the mountain islands of the Carpathians, the Yaila and the Caucasus. In the temperature conditions of Crimea and the sub-Caucasus country, the influence of their southerly location and the proximity of the sea is everywhere apparent. The mean temperature is everywhere higher than +10° (Simferopol

+10.1°, Sevastopol +12.2°, Katerinodar +12.1°). The winter is short and comparatively mild (January mean of Simferopol +0.8°, Sevastopol +1.8°, Katerinodar +2.1°, Stavropol —4.7°), but very variable. The degrees of frost are sometimes quite high (Sevastopol —16.9°, Stavropol —25.6° as absolute minima), but the frost period is short (one to two months). The spring begins in March with full force; in May follows the five-months' summer. The July means are very high, especially in the sub-Caucasus country, the heat period lasting everywhere more than two months. (July mean of Simferopol +28°, Sevastopol 33.1°, Stavropol +20°, Katerinodar +25.3°). The long autumn also is very mild.

South of the Yaila and Caucasus Mountains, on the shore of the Black Sea, lies a narrow strip of land which actually shows Mediterranean climatic characteristics. The winter lasts less than a month and is very mild (January mean of Yalta +3.5°, altho the absolute minimum is —13°), and, as in Novorossiysk, cold, bora-like gusts of wind are common in times of heavy cold. After a long spring follows a six-months' summer, which passes imperceptibly into a mild autumn.

The climate of the mountains of the Ukraine has been but little investigated. In the entire Ukrainian territory there is not a single meteorological observatory. The general characteristics of mountain climate, its greater uniformity, the smaller difference between the warmest and coldest months, the belated beginning of all the seasons, etc., may be found in all the mountains of the Ukraine.

Only the climate of the Ukrainian Carpathians is somewhat better known. The dreariest climate is that of the Beskyds and the Gorgani. The five-months' winter and long periods of sloppy weather in the spring and in the fall encroach upon the short summer. The Chornohora chain, despite the greater height of its peaks, upon which

the snow in sheltered places remains lying thru the entire summer, has a much milder and pleasanter climate. The influence of the warm summer of the adjacent plain regions limits the duration of the sloppy weather in spring and autumn. For this reason, the mountain valleys have a short but very beautiful spring, a warm summer, and a wonderful mild autumn. The mountain pastures have in place of the summer only a three months' spring.

In the Yaila Mountains, as a result of their small size and height, the characteristics of typical mountain climate are lacking, but in the Caucasus we find them in their highest development. The analogy to the Alps is perfect, but the influence of the continental steppe climate of the surrounding country is unmistakable, expressing itself in the position of the various climatic regions, in the height of the snow limit, in the development of the glacial covering, etc., very distinctly and very differently than in the Alps, which are surrounded by countries with a climate of a different kind.

We now come to the second group of climatic phenomena, *pressure and wind conditions*. The Ukraine may, in this respect, be divided into two great regions. The line of high pressure which separates these parts, called by Voiekoff the great axis of Europe, extends from the bend of the Volga, near Tsaritsin, over the porohi section of the Dnieper at Katerinoslav to Kishinev. North of this line, west winds prevail, bringing Atlantic air into Northern Ukraine. In the south, east winds prevail, bearing the influences of the Asiatic steppe climate. This wind divide is most distinct in winter. In the northern part of the Ukraine we find chiefly west and southwest winds, which mitigate the frosts and cause precipitations of rainfall; in the southern part dry, cold east winds prevail, increasing the cold. Sometimes the east wind increases to a snow-storm (*metelitzia, fuga*) which whirls up terrible masses of

snow, filling the air with snowflakes until absolutely nothing can be seen, and causes terrific destruction. Herds of a thousand head fall victim to its icy breath, even in the steppes of Crimea, and woe to the traveler who is caught in a snowstorm in the steppe.

In November and December, in Southern Ukraine, moist, warm south winds frequently come up from the Pontus. But the absolute balance is on the side of the freezing east winds, to which is to be ascribed the severe winter climate of Southern Ukraine. The northern half of the Ukraine as a rule, is seldom reached by the east winds, the northwestern corner very seldom. Their occasional appearance is accompanied by heavy frosts with fair weather.

In the spring, east and south winds blow, especially over Southern Ukraine. They often change to heavy sand-storms (*sukhovi*) very harmful to the crops, which carry clouds of sand, with which they form miniature dunes as high as 30 cm. The east and south winds, at such times, penetrate even into Northern Ukraine, altho with the exception of the northwest corner.

In the summer, on the other hand, the west, northwest, and southwest winds hold a decided balance over the east winds, even in Southern Ukraine. They bring moist Atlantic air and rain into the entire land and mitigate the heat. The occasional east winds increase the heat and bring periods of drought, but usually not until August, when they are rather frequent. In September all the winds are weak thruout the Ukraine, with high pressure. That is why the fall is so beautiful too. Then, in October and November, follows the gradual transition to the winter wind conditions.

The third group of atmospheric phenomena, humidity and precipitation, possesses the same great uniformity in Ukrainian territory as the other two elements of the climate.

The humidity of the air in the Ukraine is in general slight. It is greatest in the forest-covered partly swampy West and Northwest. Toward the southeast the humidity in the Ukraine constantly decreases. Fogs appear seldom and are only light, so that the antithesis to Western and Central Europe, as well as Russia, is striking. The light night and morning fogs which appear, especially in the latter part of summer and in the fall, only contribute to the beautification of the landscape, by flooding the depressions of land like a sea. Cloud-formation is much slighter in the Ukraine than in Western or Central Europe, or in Russia proper, the dreary Muscovite country. The greatest number of clouded days occurs in the western and northwestern part of the Ukraine; toward the southeast and east the number of such days dwindles continuously. The least amount of cloudy weather occurs in the month of August. In September and October the increase is very slight. November and December are much cloudier and January is most cloudy all over the Ukraine. After that the cloudy weather lessens considerably at first, then slowly, until August.

The atmospheric precipitations in the Ukraine are in general insignificant, except in the Carpathian and Caucasus regions. The Ukraine has less rainfall than Central or Western Europe. The Atlantic Ocean, the most important source of the precipitations in Europe, lies far distant, and the cyclonal systems on their way east drop their collected moisture upon Western and Central Europe. For the Ukraine, and particularly for the eastern part of it, there is, therefore, very little left. In this connection the Black Sea has only a local significance, and the evaporation of water from the rivers, lakes and swamps, from the plants and the ground, is hardly worth considering, except as it happens in the summer.

The great amounts of precipitation are to be found in

the mountains of the Ukraine, where rising currents of air help along the condensation of the water vapor. Even in the Low Beskid the precipitation exceeds 1000 mm. (Yasliska 1170 mm.), in the Gorgani and Chornohora we find in large areas, especially on the southern slope, a precipitation of over 1200 mm., in a few places 1400 mm. (Kobiletzka Polana 1377 mm., Bradula 1419 mm.). The amount of precipitation is still large in the entire Pidhirye, but at only a short distance it decreases considerably. Lemberg has only 735 mm. of rainfall, the southern part of the Rostoche as much as 900 mm. in places, since the western edges act like chains of mountains to the west winds. But Czernowitz, near as it is, has only 619 mm. and the Podolia on the Dniester still less. The Khotin lying in the yar of this river has only 300 mm., which best illustrates the significance of local conditions. At a greater distance from the curve of the Carpathians the amount of precipitation shows a slow but regular decrease toward the southeast. Only in the northern part of the Rostoche and the northwestern part of Podolia does the amount of precipitation attain 600 mm., while further toward the south and east a wide zone stretches out with only 500—600 mm. (Pinsk 581 mm., Kiev 534 mm., Uman 546 mm., Poltava 532 mm.). Another wide zone, which extends from the mouth of the Dniester to the bend of the Don, has a precipitation of between 400 and 500 mm. (Kharkiv 465 mm., Katerinoslav 475 mm., Kishinev 471 mm., Yelisavet 444 mm., Odessa 408 mm.). The next narrow zone of the Pontian and Crimean steppe has a precipitation of less than 400 mm. (Mikolaiv 360 mm., Sevastopol 386 mm., Luhan 379 mm.), a corner of Crimea on the peninsula of Tarkhankut has even barely more than 200 mm.

The Yaila Mountain Range is too small to have any marked influence on the increase in the amount of precipitation. Yalta has only 508 mm. precipitation. On the

other hand, the influence of the Caucasus is very great. The sub-Caucasus Kuban region, to be sure, has only 400—500 mm. precipitation, Stavropol 720 mm., Novorossysk 691 mm. However, the amount of precipitation on the southwestern side of the Caucasus Mountains increases uncommonly. At the borders of Ukrainian territory, Sochi has not less than 2071 mm.

From this account we see clearly enough that, in comparison with Central and Western Europe, the Ukraine is rather poor in rainfall, especially in the southeast. But the distribution of the precipitations among the seasons is so favorable that most of them fall at the time they are most needed, namely, in the early part of summer. The entire Ukraine lies within the area of the summer rains, only the narrow strip of the south coast of Crimea and the Caucasus are within the area of the winter rains.

The reason of the preponderance of the summer rains lies in the western and northwestern Atlantic winds, which, in that season, have easy access far into the southeastern part of the Ukraine. These winds bring so much moisture into the Ukraine that almost two-thirds of the annual rainfall belongs to May, June and July. The month with the greatest amount of precipitation for the entire Ukraine is June. Only the Polissye, Northwestern Volhynia and the western part of the Kiev territory show the heaviest precipitation in July, since, in these regions of forests and swamps, evaporation is heaviest at this time of greatest heat.

The summer rains of the Ukraine differ from those of Central or Western Europe in their heaviness. Only in the Western Ukraine are the summer rains of the type of gentle rains that are uniform for an entire country; in the south and east they appear as cloudbursts in heavy showers. In Samashcani, in Bessarabia, there have been times when 200 mm. of rain fell in a single day, in Korovintzi

in the Poltava region, 5 mm. in one minute. In the Pontian steppes all rain falls in the form of heavy showers. The water flows off quickly and evaporates rapidly, before it is able to thoroughly saturate the ground.

Electric discharges and hailstorms occur in close connection with the summer rains, most frequently in June, less so in July and in May. They usually come from the southwest in the afternoon hours. Most of these storms originate in the Carpathian Mountains and reach Volhynia and Kiev, but do not cross the Dnieper. The Caucasus, too, has very many storms. Hailstorms are most frequent in Galicia and Volhynia and the western part of the Kiev regions; very rare in the southeast.

In August the amount of rainfall slowly decreases; in September and October still more, and so it continues until December. January is the month of least rainfall for the entire Ukraine (only one-fourth of the June figure), and this circumstance is of particularly great significance for the southern and eastern parts of the Ukraine. For this reason the cover of snow in the Ukraine is much less than in Central Europe or Muscovy, besides which, it is often disturbed by snowstorms. The slight snow-cover melts down quickly in the spring, without saturating the soil well, and without requiring much warmth. This explains the rapid rise of heat in the Ukrainian spring.

From January until the end of April the amount of rainfall again grows slowly but steadily, reaching its maximum in June.

The southern part of Crimea and the Caucasian shore have just the opposite annual distribution of the precipitations. Under the influence of the moist Pontian winds, the greatest amount of rain falls in December and January, while the spring and summer have very little rain. These characteristics of the Mediterranean climate, the rainy winter after the dry summer, are all the more striking,

since the opposite condition prevails on the other side of the Yaila and Caucasus Mountains.

From this account of the Ukrainian climate we see that this climate retains an entirely independent position as against that of Central Europe or Russia. The Ukrainian climate is characterized by an annual amplitude of 20° to 30°, a mean annual temperature of from +6° to +12°, a July mean of from +19° to +24°, and a January mean of from 0° to 8°, with predominant summer rains and a generally insignificant cover of snow. The difference from the Russian climate is, consequently, quite considerable. The Russian climate forms the transition to the polar, that of the Ukraine to the Mediterranean climate.

Nature has provided the Ukraine with a pleasant, very wholesome climate. On the whole temperate, it does not lack heavy frosts and considerable degrees of heat, which harden the Ukrainian to any inclemencies of the weather. The differences of the seasons cause a pleasant variety, strong winds clear the atmosphere and bring motion into nature, the rains are everywhere sufficient for the growth of vegetation and the carrying on of the most important occupation of the Ukraine—agriculture. The great uniformity of this Ukrainian climate has recently caused the French geographer, de Martonne, to set it up as one of the types of climate of the globe.

## Flora and Fauna of Ukraine

Eastern European bigness characterizes also the organic life of the Ukraine. But it follows, from the location of the country, that the Ukraine has a much more varied plant and animal geography than the proper Russian territory, despite the latter's much greater extent.

In the Ukraine, the borders of three main divisions of plant-geography of Europe meet—the Mediterranean division, the steppe region, and the forest region, with their transition regions. Besides, we meet in the Ukraine three mountain regions—the Carpathian, the Crimean, and the Caucasian. In respect to flora, the Ukraine possesses only a few endemic species. To be sure the great ice period covered only comparatively small areas of the Ukraine with its glacier, but the polar flora undoubtedly prevailed in the entire country at that time. After the withdrawal of the glacier, steppes first appeared in its place, which then, especially in the Northwest, were forced to make room for a forest flora that had immigrated from Central Europe and Siberia. Hence, despite the considerable area of the Ukraine, so few endemic species.

Since those primeval days, only a very few natural changes have occurred in the vegetation of the Ukraine. However, man, thru his cultural activity, has wrought many changes in the plant-world of the country.

The *forest region* occupies barely one-fifth of the Ukrainian territory, only the northwestern and northern borderlands. The southeastern border of the forest region

extends from the Prut and Dniester on the western boundary of Pokutye and Podolia in a curve to the source of the Buh, then near the northern boundary of the Dnieper Plateau east as far as Kiev, and thence toward the northeast as far as the source of the Aka. This boundary, however, is not sharp. In numerous peninsulas the compact forest penetrates the adjacent transition region toward the southeast. On the other hand, this forest boundary coincides almost exactly with the northern boundary of the black soil. The soil of the forest region is in general poor. Only in higher places we find fertile turf; beyond that sandy soil and the *podsol*, rich in quartz, predominate.

The prevailing plant formation in this region is the forest. It once covered the entire region and was thinned to any great extent only within the last two centuries. What these primeval forests were like we can now tell in only a few districts of the Polissye and in the famous virgin forest of Biloveza, which lies in the extreme northwest corner of the Ukrainian territory. Here we see the primeval forest in its mighty size and beauty. In wind-fallen woods, several meters high, rotten, decaying stumps cover the ground. Their roots stand up high into the air above swampy holes and vast masses of rotting remains of plants. Above this swampy fen rise, like a vast mass of pillars, the knotty trunks of century-old oaks and lindens, ash and aspen, and the slender pine and fir. High above the ground their branches intertwine. All strive up toward the sun, for a continuous semi-darkness reigns below. Shrub and herb vegetation thrives only in clearings; beyond that only last year's leaves, needles, and a mysteriously glowing decay cover the ground. Dead silence, only occasionally broken by the hammering of a woodpecker or by the timid voice of a bird, reigns everywhere, making all the more impressive the mighty roaring of the lofty crowns in the storm.

As to their composition, the woods of the Ukrainian forest region are mixed, altho local conditions cause one or the other species of tree to predominate. The Ukrainian forest region may be divided into two regions by a line running thru Lublin southeast toward Lutzk. Southwest of this line extends the Central European forest zone, northeast of it the Northern European forest zone.

The Central European forest zone embraces the entire Pidhirye in the Ukraine, the southern part of the Rostoche, and the western spurs of Volhynia and Podolia. It is distinguished by a greater variety of tree species. Here, upon damp, loamy hills, entire forests of beech are found, on the Carpathian foothills the pine, and singly or in small groups, the larch, the yew, the maple, etc. In the Northern European zone all these trees disappear, due to the increasing continentality of the climate. The predominating species of tree here is the pine, which forms large woods everywhere on sandy soil, then the birch, which always accompanies the pine, the fir on sandy soil, the oak and white beech on loamy soil. There is an admixture of a considerable number of alders on swampy ground, aspens, lindens, elms, maples, ash and wild apple, pear and cherry trees. Hazel bushes, willow (*salix caprea*), mountain ash, raspberry and blackberry bushes comprise the thick underbrush in these mixed forests, and contribute a great deal to the beauty of the woods, together with grass and herb vegetation, especially in numerous clearings. In truer evergreen forests the underbrush usually is very poor.

There are a great many swamp forests in the Ukrainian forest region. In the Carpathian foothills they are called *lasi*, and are quite common there, but in the Polissye they are most widely developed. There they are usually composed of pines, with which, however, the swampy ground does not agree very well. The alders and willows, however, grow all the better.

The second important formation of the forest region are the *luhi*. They usually stretch thru the wide, flat river valleys of the region. These are luxurious meadows with a beautiful growth of grass and herbs set with single trees and clusters of trees. In dry places the oak usually grows, in damp places the alder.

The third typical plant formation is that of the swamps. They are widely developed in the forest region of the Ukraine, especially in the flat river valleys of the Rostoche and Volhynia. Polissye is the greatest swamp country in Europe. Regular moors, made up of peat mosses, alternate even in the Polissye region with meadow moors, in which swamp grass and herb vegetation predominates.

The forest region has played a significant part in the history of the Ukraine. When the Turkish nomad tribes, using the steppe district of the Ukraine as a convenient military road, destroyed the work of Ukrainian civilization in the steppe region, the Ukrainian people retreated into the forests and swamps of the north and west, advancing toward the southeast again, at the proper moment, to reinhabit the ravaged and desolated lands. This circle of events repeated itself frequently in the history of the Ukraine.

Today the woods of the Ukraine forest region are greatly thinned, so that they take up more than one-third of the total surface only in the Polissye. Cutting down and rooting up of the woods some centuries ago was, without a doubt, an important part of the work of civilization. But now things are different. Now the forest is considered a very important part of a well organized cultural section, and is, therefore, carefully preserved in the truly civilized lands of Europe. In the beautiful forests of the Ukraine, however, a reckless exploitation is going on, and the evil results are already apparent, especially in the sparsely wooded borders of the forest region, as well as in the entire country

surrounding the steppe. The rivers have become small in volume of water, the sources dried up, and the ravines annually transform thousands of hectars into desert land. And this is happening in the granary of Europe, which some 300 years ago made foreign travelers marvel at its incredible fertility.

All the rest of the Ukraine, as far as the foothills of the Yaila and the Caucasus, is occupied by the *steppe region.* The limits of this region, as we have said, are not distinct. In peninsula and island formations the forest penetrates toward the southeast. In this direction the forest islands become constantly rarer and smaller, so that the Russian plant-geographers have felt called upon to insert two transition zones between the real forest and the real steppe—the zone of the exterior steppe and the zone of the transitional steppe. The actual steppe region is supposed to begin at the line which extends thru Kishinev and Katerinoslav to the bend of the Don. This division may be criticized, however, since it at most, fits present conditions brought about in the last 200 years by the destruction of forests on the part of men. The historical sources of the Ukraine tell of large woodlands, which, in the 16th, 17th and 18th Centuries, still extended along the sources of the Inhul and Inhulez, along the Tasmin, on the river divides between the left-hand tributaries of the Dnieper, etc. They were not forest terraces, not mere strips of woods confined to river valleys; they covered the divides far and wide, as well as the broad tableau sheds lying between rivers. For this reason care must be taken in sketching the boundaries of the steppe. We therefore comprehend both the above mentioned transition zones into one, for which we would suggest the name *luhi zone*, because the *luh*, a meadow studded with scattered groups of trees and little groves, must have been the predominating plant formation of this transition country.

The typical soil of the transition country, as well as of the steppe region, is the black earth (Ukr. chornozem, Russ. chernozyom). Every Ukrainian is familiar with this blackish, ever fertile soil, which cannot be duplicated the world over and which makes the Ukraine the granary of Russia. The black earth is a product of the transformation of loess, with a strong admixture of the products of decomposition of plants. In places it attains a depth of 2 m. and over.

The black-earth region extends longitudinally thru the Ukraine, embracing over three-fourths of its territory. The northern boundary of the black-earth region passes from Lemberg along the north border of the Podolian and Dnieper Plateau as far as Kiev, and then northeast to the bend of the Aka, south of Kaluga. The southern boundary describes a line drawn thru the Boh and Dnieper deltas to their limans and the city of Mariupol. The entire Kuban plain and the plateau of Stavropol also belong to the region of black earth. Along the northern border of the black-earth region extends a transition zone of about 100 kilometers width, whose black earth contains 4 to 6 % decaying plant matter. South of this lies the wide main area of the black earth with 6 to 10% decaying matter. On the sea and along the lower Dnieper the region ends with another transition zone, whose brownish black earth contains 4 to 6% of decaying matter. On the Sea of Azof and in Southern Crimea the brown dry steppe soil, with numerous islands of saline soil (*solonchaki*) and a peculiar vegetation, inclined to absorb salt, prevails. These are present also in the remaining black earth region, and there are also islands and strips of saline earth along the rivers and the seashore.

In the steppe region, the steppe is not the only plant formation. Above all we must differentiate between the meadow-steppe of the transition zone and the real steppe of the south, as well as the desert steppe in some districts

of Crimea and the Caucasus. Besides this shrub formation, meadow-woods (*luhi*) and real forests are found in the steppe region.

In the vegetation of the meadow-steppe, grasses and herbs take the first place. Of the grasses the *stippa* species are the most characteristic (*tirsa*, *kovil*); of the herbs, the lily-like growths. The growth of grass in the northern part of the steppe region is very luxuriant and thick, and attains great heights, altho the times in which a rider and his horse might disappear in the grass belong to the past. High weeds and thistles (*buriani*, *bodiaki*) form thickets of great luxuriance. In the spring, when the fresh young grass begins to sprout up and the blossoming herbs convert the steppe into a carpet of flowers, when everything is resplendent with the fulness of life and beauty, then the Ukrainian steppe presents a wonderful picture. But this picture is not lasting. The heat and the drought transform the fresh, green, primitive color into yellow and brown. Grasses and herbs wither and die away, and only the roots and seeds preserve the living power of the plant, surviving the autumnal drought and the severe cold of winter, once more to wrap the steppe in its bridal gown in the spring.

In the southern part of the steppe region the plant covering is not so luxurious as in the north, and the grasses and herbs grow in isolated little bushes, between which the bare ground of the steppe remains visible. The saline earth appears much oftener, with its gray-green vegetation of salt plants, and we often find sand areas, which begin to suggest the desert steppes of the Caspian steppe country.

A characteristic plant formation in the entire steppe region is comprised by the bushes (*bairaki*, *chahari*), which generally consist of heavily tangled thickets of wild cherry (*prunus chamæcerosus*, *vishennik*), spiral (*tavolha*), snowball (*calina*), almond shrub (*amygdalus nana*, *bobovnik*),

etc. They generally grow in the steppe balkas, or near them, and cover extended areas.

The Ukrainian steppe, despite contrary current opinion, does not lack tree growth. In the region of the real steppe, to be sure, we meet only forest terraces, which extend along the river courses, but in the transition zone we still find woods and groves, which not only appear in river valleys, but also cover the plateaus between these. The oak, the white beech, the maple, the poplar, the wild apple and pear trees, are the chief representatives of the tree species of the woods of this section. Even the pine ventures as far as the district of Kharkiv.

Besides the forest terraces, the rivers of the steppe region are accompanied by the formation of the so-called *plavni*. They are thickets of sedge and reeds, with luxuriant willow and alder growth; in drier places, which are flooded only during high-water time, real oak forests are added. With pleasure the eye of the traveler, wearied by the uniformity of the steppe, rests upon them.

As to the origin of the steppes of the Ukraine, scholars differ. Every one of them thinks he has found the only correct explanation. In reality, the origin and preservation of the Ukrainian steppes can be traced to the combined action of various causes. In the first place there is the continental dry climate. The amount of rainfall is too slight for the development of forest-flora; the drought of the summer and fall too long.

A minor cause is the salt content of the steppe-soil, which, however, is apparent only in places. On the other hand, the shape of the ground is very important. Where the land is level, where the dry steppe winds have free play and the rainwater cannot easily dissolve and wash away the salt of the soil, the steppe prevails. Where the land is cut by river valleys and balkas, however, there is more shelter from wind, more moisture, and no salt in the soil,

so that conditions are given which are favorable for the development of tree vegetation. For this reason not only the valleys of the rivers, but also the balkas, which but seldom carry water, have always had tree growth, and even woods and groves. The trees which are planted there thrive very well, while attempts at cultivation in the real level steppe almost regularly fail. The most important foundation for the existence of steppes, however, is their character as remains of the old post-glacial steppe formation. Since the beginnings of the alluvial epoch, its territory is being won by the forest, which is constantly pushing forward toward the south and southeast, using the river valleys as the main lines of advance. In this advance toward the south, the forest has now been stopped by man before it was able to reach the shore of the Black Sea and the Sea of Azof.

Man has wrought many changes in the steppe region. In the first place he has entered into the struggle between the woods and the steppe in opposition to the woods. The ancient Ukrainians of the Kiev state rooted out great areas of forest and reclaimed them for civilization. On the other hand, the nomad tribes, roaming the steppes ever since man can remember, repeatedly destroyed forests with fire, in order to obtain good pasture for their herds and to break down the best defense of the agricultural Ukrainian population. In the 16th Century began the deforestation of the transition zone thru the progressing colonization movement of the Ukrainians, under the protection of the Cossack organization. But even in the 18th Century there were still great forests in the transition zone, which have since entirely disappeared. The intensive colonization movement of the 19th Century put an end to them. At the same time the hand of man attacked the steppe formation. Today only very small parcels of steppe are in their original condition. The steppe grasses

have yielded place to an increasingly intensive cultivation of grain grasses; the place of the natural steppe has been usurped by the cultivated steppe, with its waving fields of grain and inevitable dreary stubble fields. With the progressive destruction of forests this cultivated steppe of man's fields constantly moves toward the north and west of the Ukraine, favoring the accompanying migration of the steppe-plants and steppe animals into Central Europe.

Entirely independent is the position of the Ukrainian flora in the southern slope of the Yaila and the Caucasus. They belong really to the Mediterranean Sea region. The mild climate here has matured a flora of an entirely southern type, with many evergreen trees and shrubs peculiar to the Mediterranean region. Yet the vegetation of this district can only be considered as the advance guard of the real Mediterranean vegetation, for the representatives of the northern flora by far predominate over the southern species of plants, particularly in the forests which develop in higher altitudes.

Besides the just discussed plant-geographical regions and zones of the plain, the Ukraine has three *mountain regions*—the Carpathian, the Crimean and the Caucasian.

The foot of the Carpathians is covered by mixed and leafy forests. White beech, birch, linden, aspen and pine comprise these forests. At one time the oak predominated here, as it still does on the southern slope of the mountain range. On higher ridges of the Low and High Beskid, mixed forests of beech and fir are found. At the upper tree limit of the High Beskid the beech appears almost exclusively in forest formation. The trees become constantly smaller and more gnarled, and at a height of 1000 m. we meet only beech brush. On the southern side of the mountain range pure beech woods prevail.

In the Gorgani we soon distinguish two forest zones.

The lower one has principally beech woods, with an admixture of firs and maples; the upper one consists almost entirely of fir woods. Their upper limit usually lies at a height of from 1500 to 1600 m., but the *zekoti* (seas of sandstone boulders), which cover all the higher peaks and ridges, reduce the upper tree limit a great deal in some places.

In the Chornohory, a similar division of the forest zone prevails. Oak forests, with thick underbrush, cover the foot of the range on both slopes. Above the oak woods lies the zone of mixed forests, in which white and red beech, birch, ash, maple and firs predominate. Above the height of 1300 m. lies the upper tree zone, which is made up of stocks of fir entirely. The upper tree limit lies at a height of 1700 m. The milder climate of the Chornohory matures a much more luxurious and a richer vegetation than in other parts of the Ukrainian Carpathians.

In the forest zones of the Carpathians, great complex primeval forests have survived to a great extent. They lie in inaccessible places, which the bandit axe of the professional forest destroyer has not yet penetrated. The Carpathian virgin forest is, perhaps, the most beautiful plant formation of the Ukraine. Giant firs, as much as 60 m. in height and six feet thick, raise their dark green slender pyramids above rocky slopes and immense windfallen woods, in which the modern firs lie in piles. Thick shrubbery covers the clearings, while in the eternal semi-darkness of the thickets, on rocky ground covered with needles, just an occasional pillow of moss may be found.

A second plant-formation of the Carpathians is that of the dwarf-shrubs. They develop above the forest limit and cover wide areas in the Gorgani and Chornohori. Mountain fir (*zerep*), accompanied by juniper (in the Beskyds and Gorgani) and by dwarf-alder bushes (*lelich*, in the Chornohory), in thickets which are impassible in places. The formerly widely distributed stone pine has become

rare, since its fragrant wood is preferred by the mountain-dwellers for all sorts of woodwork.

The third plant formation of the Carpathians are their mountain meadows (*polonini*). They lie above the forest limit and begin to appear at the source of the San. Toward the southeast they become constantly more luxuriant and more frequent. The grass and herb growth of the *polonini* is very varied and rich, especially in the so-called *zarinki*, that is, parts of the mountain meadows where hay is made. The *polonini* are of great importance to the inhabitants of the mountains. Great herds of horses, cattle and sheep remain here all summer. The *polonini* are peopled, and a life of great privation—a hard life but free—develops in primitive dairy huts, with never dying camp-fires.

In the mountains of Crimea we find, in the main, the same arrangement of plant zones. At some height above sea-level the forest zone begins. White and red beech, oak, and two species of pine appear here in forests. Only on the broad peak surfaces we find poor mountain meadows with thick but short grasses. The name of these mountain pastures (*yaila*) has been transferred to the entire mountain chain.

In the Caucasus we find, within Ukrainian territory, only the forest zone of this mountain system. The forests often attain a height of 2500 m., and consist of various kinds of oak, beech, elms, linden, maple and ash. Above the forest limit we meet with a low shrub formation and the beautiful, wonderfully rich grass and herb growth which cover the mountain meadows of the Caucasus, rising, at a height of 2900—3500 m., to the snow border.

The animal-geographical conditions of the Ukraine are much simpler than the plant-geographical. The Ukraine, like the rest of Europe, belongs to the holarctic region, and despite the extent of the land, only slight differences in the fauna are found, these being due to

the floral and morphological differences of the mountains, forests and steppes of the Ukraine.

Since the ice age, the animal world of the Ukraine has experienced no lesser changes than the plant world. In the ice period many mighty beasts of prey (cave bear, cave lion, cave hyena, etc.) lived here, besides thick-skinned animals (mammoth, rhinoceros), together with the ancestors of the present animal world and various polar forms. All these animals are either altogether extinct, or they followed the receding glacier to the north. On the other hand, together with the post glacial steppe, a steppe-fauna spread out from south and east, which then gradually had to make way for the forest fauna advancing southward with the forests.

From this time on, the Ukrainian fauna suffered only very slight natural changes. On the other hand, the artificial changes produced by the hand of man have been all the greater. Many species which were dangerous as beasts of prey or useful for food or skins, have either been entirely exterminated by man or greatly limited in their spread. In destroying the forests and putting cultivated steppes and fields in their place, he has, to a great extent, beaten the way to the heart of Central Europe for the animals of the steppe. But his activity has been rather to exterminate than to change, and he has destroyed the once wonderful animal life of the Ukraine.

Of the higher animal life of the Ukraine on the middle and lower Dnieper, we are told, in a historical source, almost incredible facts prevailing about the middle of the 16th Century. "The Ukraine is so rich in game that bisons, wild horses and deer are hunted merely for the sake of their skins. Of their meat only the choicest cuts of chine and loin are used, all other parts thrown away. Hinds and young boars are not hunted at all. Roes and wild boars wander in great herds from the steppes into the woods

in winter, returning to the steppes in summer. During this season they are killed by the thousands. On all the rivers, streamlets, brooks, live innumerable beaver colonies. The bird world is so remarkably rich that enormous quantities of wild goose, wild duck, crane and swan eggs and young ones are gathered. In the rivers, such great shoals of fish swarm in the spring that the fishing spear thrown in stands upright." Another chronicler, of the 17th Century, tells that he was present when a single throw of the net at the mouth of the Orel brought 2000 fish to light, of which the smallest was one foot long.

Of the cat family, the lynx and the wildcat have become very rare and are met with only in the Carpathians and the Caucasus; the lynx also in the Polissye country. The bear, formerly very frequent thruout the Ukraine, is now also confined to these three regions. On the other hand, wolves, foxes, badgers, martens, polecats and all sorts of small animals of prey have survived, altho in very much smaller numbers. Of the large plant-eating animals the bison (thanks only to the unusual care on the part of the government) has survived in the primeval forest of Biloveza, the moose-deer only in the Polissye, the stag only in the Carpathians and the Caucasus. On the other hand, there are still a great many roes and wild boars in the woods. Of the rodents the hare is still common everywhere, while the beaver, which at one time inhabited all the rivers of the Ukraine, is now confined to the most inaccessible swamps of the Polissye and the Caucasian tributaries of the Kuban. The bird kingdom, too, has become much poorer in species. Large birds of prey, like eagles and hawks, nest only in the Carpathians and in the Caucasus—very seldom in the woods of the plain. The heath fowl and grouse seek the most inaccessible thickets, and even the number of small insect and grain-feeders has been greatly reduced. Of the waterfowl, wild ducks, wild geese, coot,

diving birds, etc., are still very numerous. Cranes and herons are rare. The former wealth of fish is ruined and no one takes care of the artificial raising of fish. To be sure, much fish is still caught, especially in the Dnieper and Don systems, mainly pike, tench, carp, crucian, shad, etc., and trout in the mountain streams; but of the abundance of even the comparatively recent past, there is no trace. Sturgeon, sterlet and other sea fish, which formerly came in great swarms up the Dniester, Boh and Dnieper, are only seldom found today.

The steppe region has lost even more of its animal wealth. Above all, the rich higher animal life of the transition zones, which as late as the 18th Century provided food for the populous Zaporog Sich, has quite disappeared. The *tarpani* (wild horses), which still inhabited the steppe in great herds in the 17th Century, are now completely exterminated. Saiga antelopes (*saihaki*), once generally distributed thruout the steppe region of the Ukraine, have retreated to the Caspian steppe. The smaller game and the bird world have suffered far less, but the activity of man, who has changed the steppes into fields and pastures, has been fatal to them too. The bustard, sandpiper, partridge and grouse, which formerly inhabited the steppe brush in great numbers have become rare. The same may be said of the bird-world of the watercourses and swamps which once inhabited the river districts of the steppe in immense swarms. The insectivorous birds, too, have decreased, and the harmful insects are increasing at a terrible rate. Only the locust pest, which formerly caused great damage in agriculture, is now almost gone.

But, in spite of the war of extermination which man is waging against the animal world of the steppe, animal species are found which were well able to adapt themselves to the new circumstances, have become accustomed to man and have found plenty of food in the fields of the cultivated

steppe (field-mice, marmot, ground squirrels, etc.). They have increased greatly and have migrated toward the west and north, causing great damage to farming.

As we must dispense with a scientific discussion of the flora and fauna of the Ukraine, we shall only report a few esssential facts about the useful plants and domestic animals.

The Ukraine, according to its soil and its climate, is the richest grain country of Europe. For wheat the conditions in the Ukraine are the most favorable, especially in the southern half of the black-earth region. Rye is raised more widely in the north and northwest; barley everywhere, but on a large scale only in the south; oats in the north and in the Carpathians, where it is often used to make bread. Buckwheat is distributed chiefly on the northern edge of the black-earth region; millet thrives well in the entire Chornozyom region. Corn is raised on a large scale only in the southwest and in the sub-Caucasus country.

Of pod plants, peas and beans are especially imported; they are raised not only in vegetable gardens but also in fields. Of the tuberous plants, the potato is generally distributed only in the western part of the Ukraine and increases in importance but slowly in the rest of the country. Sugar beets are cultivated on great areas of the Volhynian, Podolian and Dnieper Plateaus. Vegetable culture embraces all the vegetables of Central Europe, but is not especially developed. On the other hand, water melons, canteloupe, cucumbers (particulary in the Southern Ukraine) are raised in special plantations (*bashtani*). Hemp, flax, rape-seed, sunflower, are generally distributed, and poppy is cultivated not only in gardens but also in fields. Tobacco culture is very important in the Ukraine, particularly in the Dnieper Plain.

Thanks to the warm summer and fall, the Ukrainian climate is well fitted for fruit culture. The orchard is a

necessity to the Ukrainian farmer and is planted and cared for even under difficult conditions. Fruit culture flourishes particularly in Pokutye, Podolia (where the more tender species of apple and pear, as well as apricots, thrive in the Dniester valley), in Bessarabia, in Crimea and the sub-Caucasus country, where even peaches and grapes are added. The northern limit of the vine extends along the Dniester, then thru Kamenetz and Katerinoslav to the bend of the Don. Wine-culture has its main regions in Bessarabia, in Crimea and in the sub-Caucasus country, altho South Podolia and the Dnieper valley in the old Zaporog country do not lack vineyards.

The domestic animals are the same in the Ukraine as in Central Europe. Only in the extreme south camels and buffaloes are added. The horned cattle belong chiefly to the so-called Ukrainian breed, which is distinguished by its gray color and its size, and is bony and strong-limbed. It is very well fitted for work and is rich in milk. On the southwest borders of the Ukraine the Hungarian great-horned breed is widely distributed. In recent times the pure Holland, Tirol and Swiss breeds are continually spreading. The horses of the Ukraine belong to various mixed breeds. The most beautiful breed of horses, the Ukrainian, has been raised by the Zaporog Cossacks. It is of medium size, very strong and fleet, very enduring and useful for any sort of work. The Chornomoric variety is now being raised by the Kuban Cossacks and is rightfully famed thruout Eastern Europe for its high qualities. Very efficient, too, is the Hutzulian breed of mountain horses, small of stature but very strong, unsurpassed for mountain roads and foot-ways. The peasant horses of Galicia, Volhynia, etc., are, despite their unseemly outward appearance, really created for the rough roads of their land.

Donkeys and mules are rarities in the Ukraine, also very few goats are kept. In sheep, however, the Ukraine is

the richest country in Europe. Not only native breeds (among them the justly famous *reshetilivka*, as it is called), but also foreign merino sheep are raised, especially in the steppes of the Ukraine. Hog raising is very highly developed. Usually Polish hogs are raised in Western Ukraine, Russian short-eared hogs in the eastern part, and in Southern Ukraine, southern crinkled hogs. In barnyard fowl the Ukraine is the richest land in Eastern Europe. Also bee culture is very important, especially in the Dnieper Plain. Silkworm culture, however, is not very important, altho the mulberry trees find favorable climatic conditions thruout the Ukraine.

# BOOK II

## ANTHROPOGEOGRAPHY

# Ethnographic Boundaries of Ukraine

## Number and Geographical Distribution of Ukrainians

To give the ethnographic boundaries of a Western or Central European nation is very easy, for they have long since been determined and investigated, and it would be hard to find anyone who might try to efface or disregard them, least of all to falsify them. But with the Ukrainians it is quite different. They possess neither political independence, as for example, the Germans, French, Italians, etc., nor political influence, as for instance, the Poles and Czechs in Austria. The Ukrainians inhabit parts of two states, Austria-Hungary and Russia, and have some political significance in the former, while in the latter they are not even recognized as a racial entity.

Accordingly, the real boundaries of the National territory of the Ukraine are insufficiently known. They are best known within Austrian territory, altho the statistics, expecially those of Galicia, are very poor. Even less exact in respect to the distribution of the Ukrainians are the Hungarian statistics. In Russia the condition is worst of all. The first real census here was taken on January 28, 1897. All earlier calculations and estimates are of very questionable worth. For instance, all the Pinchuks, the Ukrainian inhabitants of the Polissye, have been erroneously counted with the White Russians, the Ukrainians in the

vicinity of Mhilin and Starodub with the Great Russians. Besides, very many Ukrainians were registered under the general heading of "Russians."

For this reason, it is impossible at the present time to give the boundaries of the Ukrainian racial territory as exactly as those of the Western and Central European countries. The boundaries here given, however, are drawn from official statistical sources, and only very conspicuous and generally acknowledged errors have been corrected.

The western boundary of the compact Ukrainian national territory begins on the shores of the Black Sea at the delta of the Danube, where part of the descendants of the Zaporogs are still devoted to their traditional vocation of fishing. Here the neighbors of the Ukrainians are the Roumanians and Bulgarians. The Ukrainian-Roumanian boundary line then goes thru Bessarabia, Bukowina, and Northeastern Hungary.

In Bessarabia the border passes thru Ismail, Bilhorod, the mouth of the Dniester at its liman, then up the Dniester to Dubosari, running in adventurous windings past Orhiev and Bilzi until it reaches the Pruth-Dniester divide, and leaving this province near Novoselitza. Innumerable ethnographic islands lie on both sides of this boundary; Roumanians on Ukrainian territory and Ukrainians on Roumanian territory. Only within the past centuries has the land been settled more thickly and the main body of Roumanians has been so dotted with this medley of races as to form a veritable ethnographic mosaic.

In the Bukowina, the boundary of the Ukrainian territory, running along the national border at first, reaches the cities of Sereth and Radivtzi. Then it turns with a sharp bend to Chernivtzi and passes in a wide curve toward the southwest and west, thru Storozhinetz, Vikiv, Moldavitsia and Kirlibaba to the White Cheremosh, where it extends over into Hungary. In the Bukowina, too, the

ethnographic boundary of the Ukrainians is not of great antiquity (the Cheremosh region excluded).

The boundary is all the older in Hungary, for the Ukrainian people have had a place here since the early middle ages. This boundary extends along the Visheva, and then the Tissa, past Sihot to Vishkiv. At this place the border crosses to the left bank of the river and, passing along the Gutin Mountain Ridge, reaches the river Tur near Polad. Here the Roumanian-Ukrainian boundary ends and the neighboring country of the Magyars begins.

The boundary of Ukrainian territory here runs in a generally northeast direction, touching Uylak, Beregszasz, Mukachiv (Munkacs), Uzhorod (Unghvar), Bardüv (Bartfa), Sabiniv (Kis Szeben), Kesmark. At Lublau the boundary crosses the Poprad River and reaches Galicia. Between Unghvar and Bartfeld, the Slovaks become the neighbors of the Ukrainians. The boundary between Slovaks and Ukrainians is very indistinct, and only the investigations of Hnatiúk and Tomashivsky have succeeded in determining it and in proving that thru the centuries the borders of Ukrainian territory have been subject to comparatively slight changes.

In Galicia, the Ukrainians are neighbors to the Poles. The Polish rule of over 500 years' duration, has forced the Ukrainian element eastward to a great extent into the hill country and the plain. Only in the mountains has the Ukrainian element preserved itself and the Ukrainian territory here forms a peninsula extending far to the west.

The Ukrainian-Polish boundary in Galicia begins at the village of Shlakhtova, west of the Poprad Pass, and extends eastward, touching the small towns of Pivnichna, Hribov, Horlitzi, Zmigrod, Dukla, Rimanov, Zarshin, as far as Sianik, whence it follows the general direction of the San as far as Dubetzco. Here it turns toward the northeast, reaches the San River again near Radimno,

and runs along the left shore past Yaroslav, Siniava, Lezaisk, reaching Russian-Poland at Tarnogrod.

In Russian Poland, the Ukrainians inhabit the newly-created Government of Kholm, and for five centuries they have had to ward off the eastward expansion of the Poles. Nevertheless, the Polonizing of the country began to progress under Russian rule, as a result of the inconsiderate Russification policy of the authorities and the sympathy of the Ukrainian population with the Greek-Catholic faith, ruthlessly suppressed by the Russians, to which the Ukrainians of the Kholm country still belonged half a century ago, a sympathy which is not yet extinct.

The boundary line between Poles and Ukrainians in the Kholm country has, on both sides, a more or less wide zone of a mixed population and numerous ethnographic islands. It passes thru Tarnogrod, Bilhoray, Shteshebreshin, Zamostye, Krasnostav, Lubartiv, Radin, Lukiv, Sokoliv, Dorohichin and Bilsk, reaching the Narev River in the Government of Grodno. Here the borders of the Ukrainian and the Polish national territory meet the White Russian border and the northern border of the Ukraine begins.

The Ukrainian-White Russian boundary extends thru the Governments of Grodno and Minsk, at first along the Narev River, up to its source in the Biloveza Forest. Then the line passes Pruzani over to the Yassiolda River, turning off near Poriche toward the northeast and reaching the lake of Vihonivske Ozero. From here it turns toward the southeast and reaches the Pripet River at the mouth of the Zna. Then this river forms the boundary up to where it joins with the Dnieper. Only below Mosir the White Russians push forward in an obtuse salient to the right bank of the Pripet. It should be observed that the White Russians along the boundary described form a transition in respect to language and ethnology between the real White Russians and the real Ukrainians, who, in this region, are

called Pinchuki. The transition zone is 30 to 50 kilometers in width.

The Dnieper forms the boundary of the Ukraine only along a short stretch in the Government of Chernihiv, from the mouth of the Pripet to the mouth of the Sol near Loüv. Then the border runs northeast past Novosibkiv, Nove misto and Suraz, as far as Mhlin, where the White Russian country ceases and the Russian begins.

To sketch accurately the boundary of the Ukraine toward Muscovy is not easy, even tho there is by no means a gradual transition here, as there is on the White Russian border. The boundary of the Ukraine is even much more sharply defined here than in the region where it separates the Ukrainians from the Poles, Roumanians and Magyars. But it is hard to determine without detailed investigation on the spot, for the official Russian statistics have been compiled very much in favor of the ruling race. In addition, it must be observed that the districts along this border were not thickly settled until the 17th and 18th Centuries. The settlers came from the Ukraine on the one side and from Muscovy on the other, and established themselves in separate settlements. To this day a purely Ukrainian village or small town often borders on one made up entirely of Russians, and the number of ethnographic islands is rather large on both sides.

The boundary of the compact Ukrainian territory in the Governments of Kursk and Voronizh passes thru Putivil, Rilsk, Sudza, Miropilia, Oboian, the sources of the Psiol, and Vorskla, Bilhorod, Korocha, Stari Oskol, Novi Oskol, and Biriuch, and reaches the Don River near Ostrohosk. The Don forms a smaller part of the border of the Ukraine than the Dnieper. The boundary line leaves the river at the mouth of the Icorez, cuts the Bitiuh River and, passing Baturlinivka and Novokhopersk, reaches the Khoper River in the country of the Don Cossacks. Here begins the

eastern boundary of the Ukrainian country. It extends first along the Khoper River southward, crosses the Don perpendicularly at the mouth of the Khoper, passes along the Kalitva and the Donetz, crossing the Don for the third time near Novocherkask, and, pursuing a wide curve along the Sal River, reaches Lake Manich. Right opposite, on the left bank of the Don, the Ukrainians confront the Kalmucks, the advance guard of the sub-Caucasian and Caucasian medley of races. Among these thinly scattered and culturally inferior tribes, a strong flood of Ukrainian and Russian colonization has been pouring in the course of the past century. The Ukrainian element is gradually predominating in the entire region of Ciscaucasia and is constantly pushing forward toward the east and southeast. New islands of Ukrainian-speaking people are forming and are growing constantly and uniting to form larger complexes.

From Lake Manich, the border of the Ukraine country runs southward thru the district of Medveza of the Government of Stavropol, as far as the sources of the great Yahorlic. Then it turns eastward past Stavropol, Alexandrivsk and Novohrihoryvsk. In a narrow strip the Ukrainians here reach the Caspian Sea. It was only suggested in the census of 1897, but proved beyond doubt by the reports of the new settlements of the Ukrainian element in these regions, that the Ukrainian area here shows a great increase.

The southern boundary of the Ukraine in the Caucasian lands passes thru the Terek, Kuban and Black Sea Governments by way of Nalchic, Piatihorsk, Labinsk and Maikop, reaching the shore of the Black Sea between Tuapse and Sochi. In this region the Ukrainians have as neighbors besides the Russians, the Kalmucks, Kirgizians, Norgaians, Chechenians, Cabardines, Circassians, Abkhasians and Caucasian Tartars.

The further course of the southern border of the Ukraine,

as far as the delta of the Danube, is indicated on the whole by the coasts of the Black Sea and the Sea of Azof. Only Crimea has, until recently, remained outside the ethnographic confines of the Ukraine. To the extent that the Crimean Tartars have begun to emigrate to Turkey, however, the Ukrainian element has gained strength thru constant reinforcements from the Central Ukrainian districts, so that today only the mountain region and the south coast of Crimea are considered Tartar country.

These boundaries enclose the compact country which is inhabited by the Ukrainians. This country includes North and West Bukowina, Northeastern Hungary, East Galicia and the southwestern part of West Galicia, the newly-created Government of Kholm (the eastern districts of the Governments of Lublin and Sidlez in Russian Poland), the southern part of Grodno and Minsk, all of Volhynia, Podolia, Kiev and Kherson, besides the southeastern and northwestern districts of Bessarabia. To the left of the Dnieper, the borders of the Ukraine include the Governments of Chernihiv, Poltava, Kharkiv, Katerinoslav, Tauria (with the exception of the Yaila) and the entire Kuban region, the chains of high mountains excepted. In addition, the following belong to the territory of Ukraine: The southern third of the Government of Kursk, the southern half of Voroniz, the western third of the Don Cossack country, the southern half of Stavropol, the northern border of the Terek region, and, finally, the northwestern part of the Government of the Black Sea. For Europe it is a very spacious territory, being second in size only to the Russian (Muscovite) national territory. The area of the Ukrainian national territory is 850,000 square kilometers, of which only 75,000 square kilometers lie within the borders of the Austro-Hungarian monarchy, the remaining country of 775,000 square kilometers being subject to Russian rule.

Beyond this compact Ukrainian national territory, the Ukrainians live in numerous great homogeneous patches, scattered over wide areas of the Old and New Worlds. In Bessarabia we meet with a whole series of these Ukrainian language areas or islands along the Pruth River and the Russian-Roumanian boundary, in the Roumanian *Dobrudja*, and in the delta of the Danube. In the Bukowina there are Ukrainian language islands at Suchava and Kimpolung, in Hungary in the *Backza*, at Nyregihatza, Nagi-Caroli, Göllnitz, etc., in the Kholm country between Lukov and Zelekhov, between Sidletz and Kaluszin, and near Sokolov. Along the White Russian border, where the transition is gradual, no real language islands are found in the intervening zone before mentioned. We find all the more of them in Ukrainian-Russian borderlands, where the two nationalities are very sharply separated and there are no transitions. In the Government of Kursk we find a whole chain of well-defined Ukrainian language islands in the midst of the Russian territory; at Fatiez, between Dmitriev and Oboian, and also at the sources of the Sem. In the Government of Voroniz there are several language islands at Siemlansk and Borisoglebsk. A few scattered Ukrainian settlements extend to the district of Tambov and Yelez. The Don country, for a long time practically closed to settlers because of its Cossack organization, was a valuable thoroughfare for the Ukrainian colonization movement in its expansion in the central Volga district. Here there lived (1910) over 600,000 Ukrainians in the Governments of Saratov, Samara and Astrakhan. Here lie, in closest proximity to numerous German colonies, great Ukrainian language islands, near Balashov, Atkarsk, Balanda, on the Eman and Medveditza, at Nikolaievsk, Khvalinsk, Samara and Boguruslan. From Khvalinsk on, the Ukrainian colonies on the left bank of the Volga take up as much space as the

Russian. We find the Ukrainian colonies here opposite Saratov, Kamishin, Dubivka, Chorni Yar, and at Zarev. Besides these there are, at a greater distance from the Volga, Ukrainian language islands in the country around the source of the Yeruslan and the Great Usen, on Lakes Elton and Baskunchak, on the Ilovla and the Yergeni hills. In the Orenburg Government, on the Ural River, more than 50,000 Ukrainian colonists now dwell. In general, the Ukrainians in the year of 1897 comprised 13% of the population of the Government of Astrakhan (District of Zarev 38%, Chornoyar 43%), more than 7% in the Government of Saratov, nearly 5% in Samara. At present, considering the active Ukrainian colonization of the past decades, these percentages must be much greater.

In the Caucasus lands we likewise find a goodly number of Ukrainian Colonies. According to the results of the census of 1897 the Ukrainians comprised 17 to 19% of the "Russian" population in the Governments of Erivan, Kutais, Daghestan and Kars, 7,5% in Tiflis and 5% in Yelisavetpol and in Baku each.

Thru the Volga and Caucasus lands, the tide of Ukrainian emigrants reached Russian Central Asia. The establishment of Ukrainian settlements in this region only began toward the end of the past century and has continued to this day. In the year 1897 the Ukrainians already comprised 29% of the "Russian" population in the province of Sir Daria and 23% in the province of Akmolinsk. In the Provinces of Transkaspia, Siemiriechensk, Turgai, Samarkand and Ferghana, the Ukrainians comprised 10% to 20% of the "Russian" population; in the Province of Siemipalatinsk, 5%.

But Ukrainian colonization in Siberia appears on the largest scale of all. In a long line of thousands of kilometers, Ukrainian language islands and detached colonies stretch along the southern border of this land of tomorrow.

The highest percentages of Ukrainians are found among the "Russian" population of the coast province near Vladivostok (over 29%) and the Province of Amur (over 20%), the greatest absolute numbers in the southern districts of the Governments of Tomsk, Tobolsk and Yeniseysk.

Besides these colonies and language islands in Eurasia, we find settlements of considerable size in America. More than half a million Ukrainians are scattered in small groups over the spacious area of the United States. They are, for the most part, mine and factory workers, who usually return, with the earnings they have saved, to their fatherland. Pennsylvania is especially rich in Ukrainian emigrants, who sometimes take root here, but usually lose their nationality in the second generation. Agricultural colonies have been established by the Ukrainians in Canada. Here we find Ukrainian language islands of some size in Manitoba, Saskachewan and Alberta, and smaller groups of settlements in Ontario, Quebec and British Columbia. The number of the Ukrainians in Canada exceeds 200,000, and the steady character and compactness of the settlements preserve the Ukrainian element from rapid denationalization. The same kind of agricultural colonies have been established by the Ukrainian peasants in Brazil. They are located chiefly in the State of Parana, also in detached groups in Rio Grande do Sul, Santa Catarina and São Paulo, as well as in the adjacent lands of Argentina. These rapidly increasing settlers, about 60,000 in number, form an important cultural element here among the indolent Luso-Brazilians.

But we do not desire, in this small work, to write a geography of the Ukrainian colonies. All are branches severed from the mother-tree, which, considering the low grade of culture of the settlers, must sooner or later be assimilated by the foreign race. Only the Asiatic colonies

have some (though rather slight) prospects of preserving their national individuality into the remote future. The constant addition of new arrivals from the home country, as well as the higher culture of the Ukrainian people as opposed to the Russian masses, will preserve the Ukrainian colonists in Asia from rapid denationalization.

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What is the total number of Ukrainians, and how many of them live in the compact Ukrainian national territory?

The answer to this question is not easy—for the same reasons which do not permit us to draw accurately the boundaries of the Ukrainian country. The political subjugation of the Ukraine on the one hand, and the size of the nation and its territory on the other, cause the ruling governments to falsify the statistics, thus concealing the true state of affairs. To a great extent, also, the ignorance of the organs performing the census bear the blame for the unreliability of the statistics collected in Ukrainian territory. The Ukrainians are either simply registered as members of another (usually the ruling) nationality, or forced, by various means, to deny their inherited nationality.

In Hungary entire villages are sometimes set down as Magyar, Slovak or Roumanian, altho their population is wholly, or for the most part, Ukrainian. In the Bukowina, too, a great many Ukrainians are registered as Roumanians. In Galicia, all Roman-Catholic Ukrainians are regularly entered as Poles, altho, as a rule, they have not even a mastery of the Polish language. Nevertheless, the Austro-Hungarian statistics allow the possibility of determining very closely the true condition. The Russian census of 1897, which gives us the sole materials for statistics on a racial basis in the Ukraine, was carried out greatly to the disadvantage of the Ukrainian element. In the cities, only the smallest minority of the Ukrainians are registered

as such, all the rest being counted as Russians. The same has been the case in all the Ukrainian colonies and language islands scattered thru the great space of the gigantic Russian Empire. Even so, we are omitting from consideration those Ukrainians who, because of lack of national consciousness or for fear of persecution, have denied their nationality.

Despite all these shortcomings of the official statistics, we shall make their statements the basis of our calculations. Only the most marked falsifications or errors can be considered and corrected. As the basis of our calculations, we shall take the figures of the census in Austria and Hungary of the year 1910, as well as the Russian calculations of the same year. As the latter lack any statement as to the relative proportions or percentages of the nationalities, we must apply the percentages of the enumeration of 1897 to the totals of 1910. This process, of course, gives us only approximate values, but it is the only available method.

We shall begin our statistical view of the Ukrainian lands with *Northeastern Hungary*. Here the Ukrainians inhabit a compact territory of over 14,000 square kilometers. The greatest part of it lies in the Carpathian Mountains and includes the northern three-quarters of the County of Marmarosh, the northeastern half of the County of Ungh, the northern borderlands of the Counties of Semplen and Sharosh, and the northeastern borderlands of the County of Zips. The total number of Ukrainians in Hungary was 470,000 in 1910, a number which, because of the insufficient Hungarian statistics, may be confidently raised to a half a million, if we consider the fact that even the doctored Greek-Catholic figures of the eighties gave approximately the latter number. The percentages of the Ukrainians in different counties, according to official reckoning, are as follows: In Marmorosh 46%, Uhocha 39%, Bereg 46%,

Ungh 36%, Sharosh 20%, Semplen 11%, Zips 8%. In the east the Roumanians form small scattered language islands, in the west the Slovaks. Amid the Ukrainian population, scattered, but in considerable numbers, live Jews; in the cities, Magyars and Germans besides. The Ukrainians inhabit all the mountainous, sparsely settled parts of the counties, hence the percentage of them is small, despite the extent of the country they inhabit. The Ukrainian people in Upper Hungary consist almost exclusively of peasants and petty bourgeois. The lack of national schools causes illiteracy to grow rampant. The upper strata of the people are three-fourths denationalized; the common people are stifled in ignorance, and in the consequent poor economic conditions, which the Hungarian Government is vainly trying to relieve.

In the *Bukowina* the Ukrainians, over 300,000 in number (38% of the total population of the land), inhabit a region of 5000 square kilometers, situated mostly in the mountainous parts of the country. The Ukrainians inhabit the following districts: Zastavna (80%), Vashkivtzi (83%), Viznitza (78%), Kitzman (87%), and Chernivtzi (55%), half the District of Sereth (42%), a third of the District of Storozinetz (26%), besides parts of the Districts of Kimpolung, Radautz and Suchava. Amid the Ukrainian population a great many Jews are settled, scattered, and in the cities many Germans, Roumanians, Armenians and Poles besides. The degree of education and the economic state of the Bukowina Ukrainians are incomparably better than those of the Ukrainians of Hungary. From the rural population a numerous educated class has sprung, which has taken the lead of the masses in the economic and political struggle.

In *Galicia* (78,500 square kilometers, 8 million inhabitants) the Ukrainians, 3,210,000, that is 40% of the total population (with 59% of Poles and 1% of Germans) occupy a compact space of 56,000 square kilometers, in

which they comprise 59% of the population. These figures are taken from the census of the year 1910, which, because of its partisan compilation, is perhaps unique among the civilized states of Europe. For not only are all the Jews (who speak a German jargon) listed as Poles, but also all the Ukrainians of Roman-Catholic faith, of whom there is more than half a million, and 170,000 pure Ukrainians of Greek-Catholic (united) faith. Basing our calculations, not on these statistics of the vernacular, but on the statistics of faith, which, too, are not unobjectionable, we obtain the following results: For the Greek-Catholic Ukrainians 3,380,000 (42%), for the Roman-Catholic Poles 3,730,000 (47%), and for the Jews 870,000 (11%). According to religious convictions, then, Ukrainian East Galicia would contain 62% of Ukrainians, over 25% (1,350,000) Poles, and over 12% (660,000) Jews. As a matter of fact, the number of Ukrainians in Galicia, according to the investigations of Dr. Okhrimovich, should be raised to at least 3,500,000, and, adding the Roman-Catholic Ukrainians of East Galicia, the number is 4,000,000. We shall retain the figure 3,380,000, however, but for the following view of the districts, the percentages will be taken from the much more justly compiled census of the year 1900. The greatest percentage of the Ukrainian population, that is 75—90%, is found in the Carpathian Districts of Turka, Stari Sambir, Kossiv, Pechenizin; the sub-Carpathian Districts of Bohorodchani, Kalush, Zidachiv; the Pocutian Districts of Sniatin and Horodenka, besides the District of Yavoriv in the Rostoche. The percentage of Ukrainians vacillates between 67 and 75% in the Districts of Lisko, Dobromil, Striy, Dolina, Nadvirna, Tovmach, Salishchiki, Borshchiv, Rohatin, Bibrka, Zovkva and Rava. More than three-fifths of the population (60—66%) is made up of Ukrainians in the Districts of Drohobich, Sambir, Rudki, Mostiska, Horodok, Kolomiya,

Sokal, Kaminka, Brody, Sbaraz Zolochiv, Peremishlani, Berezani, Pidhaytzi, Chorytkiv, and Husiatin; 50—60% Ukrainians are found in the Districts of Chesaniv, Peremishl, Sianik, Ternopil, Skalat, Terebovla, Buchach and Stanislaviv. In only two districts the percentage of Ukrainians falls below 50%: in the districts of Lemberg (49%) and Yaroslav (41%). In the city of Lemberg the Ukrainians comprise only one-fifth of the population, and in other larger cities of East Galicia, too, their percentage is not great. Consequently, the total percentages of the Ukrainians in the districts are influenced very unfavorably thru the addition of the city population. Besides, the East Galician cities, inhabited chiefly by Jews and Poles, are the chief centers of the Polonizing efforts. Only in the most recent times is the percentage of Ukrainians in the larger cities of East Galicia becoming greater, as a result of the continued flocking in of the Ukrainian rural population. In the fifty smaller cities of East Galicia, on the other hand, the Ukrainians comprise absolute majorities, *e. g.*, Yavoriv, Horodenka, Tismenitza.

In West Galicia only the District of Horlitzi (Gorlice) has more than 25% Ukrainians, the remaining four (Yaslo, New Sandetz, Krosno, Hribov) only 10—20%.

The Ukrainian population of Galicia consists nine-tenths of peasants and petty bourgeois. From them a numerous educated class has sprung in the past century, which has taken the political and cultural leadership of the masses. For this reason, too, national consciousness has advanced most among the Ukrainians of Galicia.

In the compass of the Russian State the Ukrainians occupy a compact national territory of almost 775,000 square kilometers. The actual size of this territory will be accurately determined only when we possess an accurate ethnographic map of the Ukraine. Until then the size of the various Ukrainian sections can only be estimated.

The following statistical information is taken from the calculation of 1910, the percentage of Ukrainians from the Russian census of 1897. But the Pinchuks, in the Government of Minsk, were counted as belonging to the Ukrainians by the common opinion of all Russian and non-Russian ethnographers, altho the official statistics have designated them as White Russian.

We shall begin at the western border region, at the Kholmshchina (Kholm land), which was recently organized by the Russian Government as an independent Government apart from Russian Poland, and includes the eastern areas of the Governments of Lublin and Sidletz. In the Government of Lublin (16,800 square kilometers, 1,500,000 inhabitants) the Ukrainians comprise 17% of the population (250,000), in the Government of Sidletz 14% (140,000). The region inhabited by the Ukrainians in both Governments together, amounts to 10,000 square kilometers. Poles and Jews inhabit not only the cities in the Kholm country, but to a great extent villages as well, and comprise a considerable percentage of the population near the western border of the Ukraine. The percentage figures of the Ukrainians and Poles (in parentheses) are in the various districts of the Government of Lublin: Hrubeshiv 66 (24), Tomashiv 52 (37), Kholm 38 (38), Bilhoray 22 (68), Zamostye 9 (83), Krasnostav 6 (83); in the districts of the Government of Sidletz: Vlodava 64 (20), Bila 48 (38), Konstantiniv 22 (55), Radin 5 (87). In these districts the Jews comprise 5—13% of the population, the Germans 14% in the District of Kholm. The number of Ukrainians in the generally Polish-Jewish cities is not insignificant, even comprising the absolute majority in Hrubeshiv.

In the Government of *Grodno* (38,600 square kilometers 1,950,000 inhabitants), the Ukrainians comprise 23% of the population and inhabit the districts of Berestia (81% Ukrainians), Kobrin (83%) Bilsk (42% relative majority),

and the border of Pruzani (7%), altogether 14,000 square kilometers, with a Ukrainian population of 440,000. The Poles and White Russians comprise 2—3% in the first two of these districts, the Poles 37% in the District of Bilsk, the White Russians 79% in Pruzani, the Jews 9—11 % in all districts.

In the Government of *Minsk* (91,000 square kilometers, 2,800,000 inhabitants), the Ukrainians (Pinchuks) comprise 14% of the population. They inhabit the entire District of Pinsk and the half of the District of Mosiv, situated on the right bank of the Pripet River, altogether 17,000 square kilometers, with a Ukrainian population of 390,000.

The Government of *Volhynia* (71,700 square kilometers, 3,850,000 inhabitants) is a central Ukrainian region. The Ukrainians (2,700,000) here comprise over 70% of the population, the Jews 13%, the Poles over 6%, the Germans about 6%, the Russians 3%, the Czechs 1%. These foreign peoples live scattered, or as colonists, and chiefly in the cities of Volhynia, in all of which (Kremianetz excepted) they are more numerous than the Ukrainians. In the country it is different. The percentages of Ukrainians in the districts of Volhynia are very high: Kovel 86%, Ovruch 87%, Ostroh 85%, Zaslav 82%, Kremianetz 84%, Starokonstantiniv 80%. Somewhat smaller are the percentages in the following districts: Zitomir 73%, Dubno 73%, Volodimir Volinsky 68%, Rivne 65%, Lutzk 62%.

In the Government of *Kiev* (51,000 square kilometers, 4,570,000 inhabitants) the Ukrainians comprise over 79% (3,620,000) of the population. This percentage takes into account the city population, of which the majority are Jews and "Russians." In the districts, as Chihirin, Svenihorodka, Uman, Tarashcha, the percentage of Ukrainians exceeds 90%, in Radomishl 80%. The chief foreign element are the Jews (12%), then the Russians

(over 6%), and the Poles (2%). In the city of Kiev the Ukrainians comprise more than one-fifth of the population, as much as the Jews and Poles together. An absolute Ukrainian majority exists in the cities of Vassilkiv, Kaniv, Tarashcha, Zvenihorodka and Chihirin. In Berdichiv, Cherkassi, Uman, Lipovetz, Skvira and Radomishl the Jews predominate.

The Government of *Podolia* (42,000 square kilometers, 3,740,000 inhabitants) has over 81% of its population Ukrainian (3,030,000). In some districts the percentage is much higher, as for example in the District of Mohiliv, 89%. The Jews are the largest foreign element (12%) then the Russians (3%), and the Poles (2%), who live principally in the cities. Only the smaller Podolian cities, *e. g.*, Olhopol, Yampol, Stara Ushitza, Khmelnik, have a Ukrainian majority. In Haisin, Vinnitza, Litin and Bar the number of Ukrainians equals the number of Jews; in Kamenetz, Balta, Bratzlav, Letichiv, Mohiliv and Proskuriv the Jews predominate.

The Government of *Kherson* (71,000 square kilometers, 3,500,000 inhabitants), just as the three last discussed, is part of the compact Ukrainian national territory, altho the population of this region appears much more mixed. The Ukrainians (1,640,000) here comprise barely 54% of the population. The chief cause of this is the fact that in the large cities of this Government, Jews and Russians predominate, and then there are a great many Roumanian, German and Bulgarian colonies. Despite this, however, the Ukrainians constitute an absolute majority in most of the districts (*e. g.*, the District of Alexandria 88% of Ukrainians, Yelisavet 73%, Kherson 70%, Ananiiv 63%), a relative majority in the rest (Odessa 47%, Tiraspol 38%). The Russians comprise more than 21% of the population, the Jews 12%, the Roumanians over 5% (District of Tiraspol 27%), the Germans nearly 5%, the Bulgarians

and Poles 1% each. Odessa is a city of many languages. Russians and Jews predominate; the Ukrainians comprise barely one-eleventh of the population, besides which there are Germans, Roumanians, Bulgarians, Poles, Greeks, French, English, Albanians, etc. In Mikolaiv the Ukrainians are only one-thirteenth of the population, in Kherson one-fifth, in Yelisavet one-fourth. In the following cities the Ukrainians possess an absolute majority over the Russians: Alexandria, Ananiiv, Bobrinetz, Vosnesensk, Olviopol, Ochakiv, Berislav, Dubosari.

The Government of *Bessarabia* (46,000 square kilometers, 2,440,000 inhabitants) has only its northwest tip and its coastal region within Ukrainian national territory. The Ukrainians (460,000) comprise barely 20% of the population of this Government, which consists principally of Roumanians. The territory inhabited by the Ukrainians amounts to 10,000 square kilometers. The Ukrainians comprise an absolute majority only in the District of Khotin (56%), along with 25% Roumanians and 13% Jews. In the District of Akerman the Ukrainians make up 24% of the population, the Bulgarians the same, the Germans and the Roumanians 18% each, the Turks 4%. The Ukrainians settle on the sea-coast and the Dniester. In the District of Ismail there are 17% Ukrainians, 47% Roumanians, 11% Bulgarians, 9% Turks, 3% Germans; in the District of Soroki 17% Ukrainians, 67% Roumanians, 11% Jews. In other districts of Bessarabia there are much fewer Ukrainians; in the district of Biltzi 12%, Benderi 9%, Orhiiv 6%, Kishinev only 2%. In the cities Jews, Russians and Roumanians predominate. The Ukrainians possess an absolute majority only in Akerman, a relative majority in Ismail and Kilia.

In our survey of the Ukraine on the left Dnieper bank we shall begin with the border regions, coming gradually to the central parts.

In the Government of *Kursk* the Ukrainians (670,000 comprise over 22% of the population and inhabit the following districts: Putivl (55% Ukrainians), Hraivoron (61%), Novo Oskol (56%), and the southern parts of Sudga (44%), Rilsk (33%), Korocha (35%), Bilhorod (24%). Besides that, the Ukrainians are scattered in large and small language islands over the Districts of Oboian (12%), Stari Oskol (9%), and Lhov (5%). The area of the compact Ukrainian territory in the Government of Kursk may be estimated at 12,000 square kilometers. The only neighbors and co-inhabitants of the Ukrainians here are the Russians, who, even in many cities of the purely Ukrainian territory, comprise majorities. However, there are a number of Ukrainian cities in the Kursk country. Miropilia has 98%, Sudza 65% Ukrainians, Hraivoron and Korocha are half Ukrainian.

In the next following border region, the Government of Voroniz (65,000 square kilometers, 3,360,000 inhabitants), the Ukrainians inhabit the Districts of Ostrohosh (94% Ukrainians), Bohucha (83%), Biriuch (70%), Valuiki (53%), and the southern parts of Pavlovsk (43%), Bobrovsk (17%), Korotoiak (17%), Novokhopersk (16%). Ukrainian language islands are found chiefly in the District of Semliansk (4%). The total percentage of Ukrainians in the Government of Voroniz is 36%, their number over 1,210,000, the surface they inhabit 29,000 square kilometers. The only neighbors of the Ukrainians here are the Russians, who also comprise the majority in all cities. Only in Biriuch, Bohuchar, Ostrohosh, do the Ukrainians predominate.

In the Government of the *Don* Cossack army (164,000 square kilometers, 3,500,000 inhabitants) the relation of the Ukrainians to the population is similar to that in the Governments of Kursk and Voroniz. Just as the Ukrainian districts there border on the adjacent central Ukrainian

lands of Poltava and Kharkiv, so the Ukrainian parts of the Don country touch the central Ukrainian lands of Kharkiv and Katerinoslav. The Ukrainians (980,000) comprise 28% of the population of the Don country and inhabit 45,000 square kilometers. Most thickly populated by Ukrainians are the southern districts: Tahanroh (69%), Rostiv (52%), the western half of the Donetz District (40%). The statistics show far less Ukrainians in the Districts of Cherkask (23%) and Sal (31%). In the Districts of Don I (12%), Don II (4%), Ust Medvedinsk (11%), Khoper (7%), the Ukrainians form language islands in the midst of a Russian population. In the District of Sal the relative majority is credited to the Kalmucks (39%), but beyond that only Russians are the neighbors of the Ukrainians. But all this data is not unobjectionable. It has long been an established fact that the lower "Don Cossacks" are for the most part of Ukrainian nationality. At the same time we see, from the official census of 1897, that none of the Don Cossacks were counted as members of the Ukrainian nation. In the cities of the Don country the number of Ukrainians is very small, *e. g.*, in Rostiv hardly greater than one-fifth. Only the city of Osiv (Azof) is predominantly Ukrainian.

The *Kuban country* (92,000 square kilometers, 2,630,000 inhabitants) has a relative Ukrainian majority (over 47%= 1,250,000), along with 44% Russians and 9% Caucasus races.

In this land the purely Ukrainian country embraces over 56,000 square kilometers. Three of the districts have an absolute Ukrainian majority: Yask (81%), Temriuk (79%), and Katerinodar (57% Ukrainians, 27% Russians, 11% Circassians). In the Caucasian District there are 47% of Ukrainians and as many Russians, in the District of Maikop 31% Ukrainians, 58% Russians, 6% Circassians, 2% Kabardines, in the Labinsk District

28% Ukrainians, 77% Russians, in the District of Batalpashinsk 28% Ukrainians, 39% Russians, 13% Karachaians, 5% Abkhasians, 4% Kabardines, 3% Nogaians, 2% Circassians. It should be observed, however, that perhaps nowhere have so many Ukrainians been entered as Russians in the census as in these very Caucasian lands. For this reason the entire Kuban country may be considered Ukrainian territory, except the chains of high mountains.

In the Government of Stavropol (60,000 square kilometers, 1,230,000 inhabitants) the Ukrainians comprise 37% (450,000). They inhabit a region of nearly 22,000 square kilometers in the west and south of the Government, where the border of the Ukrainian settlements, which reaches the Caspian Sea, begins. The District of Medveza has 48% Ukrainians (in the west), the District of Stavropol 13% (in the extreme south), the District of Olexandrisk 40%, Novotvihoriiosk 54% (chiefly in their southern halves). The neighbors here are Russians and Nogaians.

In the *Terek region* (69,000 square kilometers, 1,183,000 inhabitants) the Ukrainians officially comprise only 5% of the population (50,000), altho it is generally known that an appreciable part of the Terek Cossacks belongs to the Ukrainian nation. A large percentage of Ukrainians (14%) is found only in the District of Piatihorsk; outside of that the Ukrainians are united in a narrow seam of settlements extending to the Caspian Sea.. 29% of the population in the Terek region is Russian; the absolute majority is made up by various Caucasian races (Kabardines, Tatars, Ossetians, Ingushians, Chechenians, Avaro-andians, Kumikians, Nogaians).

The small Government of the Black Sea (7000 square kilometers, 130,000 inhabitants) has only 16% Ukrainians who live, 10,000 in number, in the northwestern part of the extended coast region. In the District of Tuapse there are 27% Ukrainians; in the District of Sochi 8%. Their

neighbors are Russians, who do not form an absolute majority at any place, then Armenians, Circassians, Greeks, Turks, etc.

The most important border country in the south, however, is, without doubt, the Government of Tauria (60,000 square kilometers, 1,800,000 inhabitants). The Ukrainians here comprise the relative majority of the population (42%—790,000), with 28% Russians, 13% Crimean Tatars, over 5% Germans, about 5% Jews, about 3% Bulgarians, about 1% Armenians, etc. The Ukrainians comprise an absolute majority in the Districts of Dniprovsk (76%), Berdiansk (64%), and Melitopol (57%), and large minorities in the Districts of Eupatoria (27%) and Perekop (24%), the northern parts of which they inhabit. The entire mainland part of the Government and the northern part of the Crimean pensinsula, consequently belong, without doubt, to the compact Ukrainian national territory, while the number of Ukrainians in the southern regions of Crimea appears much smaller (District of Feodosia 13%, Simferopol 10%, Yalta 2%). The chief foreign element in Tauria is composed of Russians (Dniprovsk 16%, Melitopol 32%, Berdiansk 18%, Perekop 24%, Eupatoria 17%), and Tatars (Yalta 71%, Simferopol 51%, Feodosia 45%, Eupatoria 40%, Perekop 24%). To the extent that the Tatars emigrate to Turkey, however, the settled area and the number of the Ukrainians of Tauria constantly increase, so that the time does not seem far off when the Ukrainian element will have gained the entire Crimean peninsula for its national territory. Besides, one must entertain strong doubts concerning the actual number of the Russians mentioned in the statistics, for the Rittich map of 1878 gives almost no Ukrainians in Tauria, and calls even the mainland parts of Tauria Russian. And twenty years later came the just-mentioned figures of the official statistics. We may then, confidently

consider the entire Government of Tauria a Ukrainian district, with considerable colonization by foreign-speaking people. The most important of the foreign settlers are without a doubt the Germans. They are 24% of the population in the District of Perekop, 12% in Eupatoria, 8% in Berdiansk, 5% in Melitopol; the Bulgarians make up 10% of the population in Berdiansk.

Next to be considered, after these borderlands, are the four central regions of the Ukraine which lie on the left bank of the Dnieper. In the Government of *Katerinoslav* (63,000 square kilometers, 3,060,000 inhabitants) the Ukrainians 2,110,000 in number, comprise 69% of the total population, with 17% Russians, 5% Jews, 4% Germans, 2% Greeks, 1% each of Tatars, White Russians and Poles. Detached districts of the land have very high percentages of Ukrainians, *e. g.*, District of Novomoskovsk 94%, Verkhnodniprovsk 91%, Olexandrivsk 86%, Pavlohrad 83%. In the large cities the number of the foreign elements is very great, hence, the District of Katerinoslav has 74% Ukrainians, and when the city is counted in, only 56% Ukrainians, with 21% Russians, 13% Jews, 6% Germans, 2% Poles. The smallest percentage of Ukrainians is found in the southeastern districts of the region, where populous settlements of foreign elements exist. The District of Bakhmut, for instance, has 58% Ukrainians with 32% Russians, the District of Slavianoserbsk 55% Ukrainians besides 42% Russians, the District of Mariupol 51% Ukrainians besides 20% Greeks. In the City of Katerinoslav the Ukrainians comprise barely one-seventh of the population, while in Olexandrivsk, Verkhnodniprovsk, Novomoskovsk and Bakhmut, they predominate over the Russians, and are equal to them in Slaviansk and Pavlohrad.

In the Government of *Kharkiv* (54,000 square kilometers, 3,250,000 inhabitants) the Ukrainians make up 70% of the total population, or 2,275,000. As a result of

considerable Russian colonization (28%), forming several language islands in the midst of Ukrainian territory, the percentage of Ukrainians in several districts varies appreciably (*e. g.*, Smiiv 66%, Vovchansk 75%, Starobilsk 84%, Kupiansk 87%). But we note for the first time, here, the remarkable fact that in all the district cities the Ukrainians are much more numerous than the Russians. Only in the capital city, Kharkiv, are they in the minority, and comprise little more than one-fourth the population.

The Government of *Poltava* (50,000 square kilometers, 3,580,000 inhabitants) may be considered the heart of the Ukraine. The Ukrainians here comprise 95% of the population, or 3,410,000, beside 4% Jews and 1% Russians. The percentage in detached districts varies between 88% (District of Konstantinohrad) and 99% (District of Sinkiv). The Russians and Jews live principally in the cities, where they are always second to the Ukrainians, however, except in the city of Kreminchuk, where the Jews comprise the majority.

In the Government of *Chernihiv* (25,000 square kilometers, 2,980,000 inhabitants) the Ukrainians comprise 86% of the population (2,450,000), beside 5% White Russians, 5% Jews, and 4% Russians. With the exception of the northern districts, Suraz (Ukrainians 19%, White Russians 67%, Russians 11%), Novosibkiv (Ukrainians 66%, Russians 30%, White Russians 2%), and Starodub (Ukrainians 75%, Russians 22%), all the districts of the region have from 88% (Horodnia) to 99% (Krolevetz) of Ukrainians. All the district cities, except Novosibkiv, Starodub, Suraz and Mhlin, have an absolute Ukrainian majority; the capital, Chernihiv, only a relative one.

The number of Ukrainians within the compact national territory in Russia, then, amounts to almost 28½ millions. Excluded in this estimate are the Ukrainians of the Government of Astrakhan (190,000), Saratov (220,000), Samara

(150,000), Orenburg (50,000), as well as the Ukrainians of all Asiatic-Russian lands, whose number is not placed too high at 500,000. We may therefore estimate the number of Ukrainians in the entire Russian Empire as 29½ millions.

This figure, which was gained thru a critical survey of the statistical material of the individual administrative units of Russia, is approached with remarkable closeness by the figure which may be gotten in another, more general way. In the year of 1897 the number of Ukrainians in the Russian Empire was 22,400,000; that is, 17.4% of the total population of 129,000,000. Applying the same percentage to the numerical estimate of 1910, we get 28,900,000 Ukrainians in a total Russian population of 166,000,000. Adding the Pinchuks (390,000) who, in the official statistics were erroneously counted as White Russians, we receive for the number of Ukrainians of Russia (1910) 29,300,000.

Now, adding up all the Ukrainians of the globe, we receive (for 1910) an amount of 34½ millions; 32,700,000 of it in the compact Ukrainian country. This figure is a minimum value, for in calculating it the intentional errors of the official statistics were taken into the bargain. Nevertheless, this figure shows us that the Ukrainians occupy the sixth place, numerically, among the nations of Europe, the five above them being the Germans, Russians, French, English and Italians. Among the Slavic races they stand in the second place.

How this great numerical strength of the Ukrainian nation can be brought into harmony with its political and economic weakness we shall try to show in the sections following. Now let us turn briefly to the density of population of the Ukraine.

The 850,000 square kilometers of solid Ukrainian national territory are inhabited by approximately forty-five million people (1910), of whom, according to official estimates, 73% are Ukrainians. The general density of

the Ukraine, consequently, amounts to 53 inhabitants to the square kilometer. The Ukraine is also the transition from the thickly populated countries of Central Europe to the thinly-peopled northeast and east of the globe. This transition may easily be followed out within the Ukraine also. The western border regions are the most thickly settled. Galicia has a density of 102, the Government of Lublin 90, the Government of Kiev 90, Podolia 89, Bukowina 77, Poltava 72. We see a wide zone of dense population, then, extending along the 50th parallel of latitude, from the Carpathians to the Dnieper. To the north of it, the first more thinly peopled zone extends: Sidletz 69, Grodno 51, Minsk 39, Volhynia 54, Chernihiv 57, Kursk 65, Voroniz 51. On the south of the thickly peopled zone lies the second more sparsely settled zone: Bessarabia 53, Kherson 49, Tauria 31, Katerinoslav 48. Most thinly settled, however, are the eastern borderlands of the Ukraine: Kuban 28, Don and Stavropol each 21, Chornomoria and the Terek region each 17.

Within these extensive regions, too, the density of population varies greatly. Sometimes districts very close together have a widely different density. These differences, however, are largely only seeming differences and are caused by the city populations. Thus, for example, the marked density of the Districts of Stanislaviv (184), Ternopil (161), Peremishl (160), Kolomia (156), is caused by the presence of the populous cities of the same names. Therefore the Pokutian District of Sniatin (147) seems very thickly settled, because of the smallness of the district cities. The average density of Ukrainian East Galicia is only 98; in the mountainous Districts of Dolina and Kossiv it only attains 45. The same conditions exist in Russian Ukraine. The District of Kharkiv has a density of 164 inhabitants to the square verst; the District of Kiev 152. Considering only the rural population, however,

these figures sink to 81 and 75 respectively. Therefore, the District of Kaniv with its 117 inhabitants to the square verst, (113, or not reckoning in the inhabitants of the cities), appears to be the best-populated district of the Russian Ukraine. Many districts besides, in Podolia, Kiev, Poltava, Kharkiv and South Volhynia (without counting the cities), have a density of 75 and 100, while other districts of the same region vary between 50 and 75. In the forest swamp regions of Northern Ukraine the density figure falls a great deal. The District of Ovruch, in Northern Volhynia, attains a density of only 29; the Polissian Districts of Pinsk and Mosir 26 and 17 respectively. The steppe country of Southern Ukraine is likewise very thinly settled in places. The density of population of most of the districts of Southern Ukraine varies between 30 and 50, but the Districts of Eupatoria and Perekop, for example, have only 11 inhabitants per square verst, the second Don District 12, the Sal only 6, the District of Batalpashinsk in the sub-Caucasian country only 17.

From these figures we see that the Ukraine, as regards its density, is a genuine Eastern European land. But in comparing its density of population with that of the Russian Empire, or even of Russia in Europe, we perceive that the Ukraine is the most thickly settled part of the giant Russian Empire, after Poland. Even the most thinly settled southeastern border regions have a greater population to the square kilometer than Russias's average (25 per square kilometer). Almost one-fourth of the enormous human reservoirs of Russia are found on Ukrainian territory. And yet the Ukraine, despite its great size, is only one-twenty-ninth of the giant Russian Empire.

From these figures we see, furthermore, that trade, industry and commerce have, to this day, been unable to influence the density of population of the Ukraine. The Ukraine has remained in the original stage of development,

in which only the age of settlement and the fertility of the soil form the basis for increase in the density of population. The history of the Ukraine has, to this day, influenced the country's density of population. The former central districts of the old Ukrainian state of Kiev and Halich are still the most thickly settled; the southern and eastern border regions, which have suffered most from the 500 years of the Tartar scourge, the most thinly settled. This is the reason that Galicia, one of the poorest regions of the Ukraine in natural resources, where industry and trade are so little developed, is at the same time the most thickly populated region.

Similarly primitive, and betraying a low grade of culture, is the relation between the city and country population of the Ukraine. Only a very insignificant fraction of the population inhabits the cities and towns of the Ukraine. In Galicia (1910) only 14½% of the population lives in places whose population is more than 5,000; only 9½% in cities of over 10,000. Similar conditions prevail in Russian Ukraine. Very rarely does the city population exceed 10% of the total number of people, usually keeping below this percentage, which is typical for all of Russia. Podolia has only 7% city population, Volhynia 8%, Chernihiv 9%, Poltava 10%, Kuban 11%, Katerinoslav 12%, Kiev 13%, and Kharkiv 14%. Only the regions colonized within the last century in Southern Ukraine, with their large cities, have a large percentage of city population (Tauria 20%, Kherson 29%).

More glaringly still does the low grade of culture of the Ukraine stand out when we give the percentage of the Ukrainian population in the cities of the Ukraine. Only in Galicia do 14% of the Ukrainian people of the country live in the cities. In the Government of Kharkiv only 10% of the Ukrainians of the district belong to the city population, in Kherson only 9%, in Kuban 8%, in Cherni-

hiv 7%, Poltava 6%, Tauria 5%, Kiev and Katerinoslav each 4%, in Podolia 3%, and in Volhynia actually only 2% It is true that, especially in the cities, the official estimates were "made" very unfavorably to the Ukrainian element, but, nevertheless, they show clearly enough that the Ukrainian people, clinging to their agrarian state, have left the cities, those centers of cultural and economic life, in the hands of foreign elements. Only within very recent years have these conditions begun to improve. The foreign-speaking cities are gradually coming to be Ukraine-ized, and the very rapidly growing percentage of Ukrainians in Galicia and the Russian Ukraine justify us in hoping that the Ukrainian element, in its continuous stream from the surrounding country, will, in time, absorb the foreign-speaking elements which now command the cities of the Ukraine.

# The Ukrainian Nation as an Anthropogeographic Unit

## General Survey

In the first chapter of our little book we mentioned the reasons which compel us to regard the Ukraine as a physico-geographic whole. We emphasized the fact that the geographic units of the great uniform country of Eastern Europe could not, for obvious natural reasons, appear so well-defined and individualized as the different sections of Western and Central Europe. The same is true of the anthropogeographic conditions of Eastern Europe as well.

The anthropogeography of Eastern Europe is so unfamiliar a part of geographic science that even such pioneer geographers as Ratzel, Kirchhoff and Hettner entirely misunderstood and misrepresented the anthropogeographic conditions of Russia, and especially the racial conditions of this giant empire.

There are two reasons for the universal ignorance of the anthropogeographic conditions of Russia which exists even in the ranks of renowned scholars. The first cause lies in the sources from which scholars, and subsequently publicists, draw their knowledge of the subject. Now the official Russian sources on the basis of which an anthropogeography of Eastern Europe would have to be written are not immune from serious criticism. The ranks of Russian scholars have always worked in the interests of the Russian political idea, and latterly, caught by the

mighty wave of Pan-Slavic-Russian nationalism, they are doing their best to represent as actual fact whatever Russian governmental politics would desire to be fact. Russian geography, ethnography, statistics, history, have always worked in accordance with approved "unifying" designs. Hence, European learning involuntarily sees all that exists and is coming into existence in Russia thru the spectacles put on it by official Russia. The same official Russia comes to meet the European traveler upon every step of his journey, and guides him in such a way that he may be sure not to see below the general official Russian varnish what is actual and true. Besides, there is the Russian censorship, which even now, after the introduction of the constitution, takes very good care to veil everything from the view of the outside world, which, in the interest of the Russian political idea, should remain hidden.

The second cause of ignorance as to the anthropogeography of Russia lies in the subject itself. The Eastern European family of races inhabiting Russia is so different from that of Western and Central Europe in its evolution and composition, that the anthropogeographical laws and methods which (as far as civilized peoples are concerned) are based upon Western European conditions, do not apply in the least in Eastern Europe. A difficulty confronts anthropogeography here, analogous to the difficulty which confronted geologic science when, fitted out with European *stratigraphy*, it sought to explore South Africa or India. The geologists, as representatives of a natural science, were readily able to find the way out, but the anthropogeographers, whose field is more that of a psychic science, have lost themselves in false assumptions and in commonplaces.

We must not wonder, therefore, if every critical reader of the preceding chapter is assailed by a host of questions: Why in the world are the Ukrainians, this second largest

Slavic nation of the whole world, so utterly unknown? Perhaps Ukraine is only an ethnographic conception, and the Ukrainians only a branch of the Russian race, just as the Bavarians or Saxons are branches of the German people? Or are the terms "Ukraine," "Ukrainian", only outgrowths of the idle imagination of a few belated enthusiasts, who rave about a glorious past and a brilliant future, and represent what they are striving after as a *fait accompli*, and so forth.

Such questions, based upon deep ignorance of the anthropogeography and history of Eastern Europe, come up in this very 20th Century, even in the learned circles of scholars, publicists and politicians. To answer these and similar questions correctly, this little book has been written.

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The Ukrainians are quite as independent a Slavic nation as the Czechs, Poles, White Russians, Russians, Serbs or Bulgarians. The historic roots of the Ukrainian nation extend just as far back into the early middle ages as the roots of the German, French or English nations. The old Ukrainian Empire of Kiev is of the same age as the Holy Roman Empire of the German Nation. But, while the evolution of the great European nations was steady and uninterrupted, the Ukrainian Nation was hindered in its development by reason of its geographical position on the threshold of Asia. The Mongolian attack in the 13th Century shattered the state of Kiev and introduced the 500 years' Tartar scourge. Weakened by the continual expeditions and slave-hunts of the Crimean Tatars, the Ukraine fell under the rule of Lithuania and Poland, who not only could not relieve the land of the Tatar menace but even added national, social and religious pressure. The instinct of self-preservation led the Ukrainian nation, in that troubled time, to create the splendid

military organization of the Ukrainian Cossacks, and about the middle of the 17th Century, in a victorious war, to shake off the Polish yoke. Thus, the second Ukrainian state, the Cossack Republic, came into existence. By the Treaty of Pereyaslav (1654) it was ceded as a vassal state to Russia, which was related to it in religious faith. But Russia broke the treaties of suzerainty, shared the desolated Ukrainian land with Poland, and, after a century and a half, changed the autonomy of the Ukraine into abject serfdom. After Russia, in the partitions of Poland, had united almost the entire Ukrainian territory under its rule (with the exception of Eastern Galicia, Northwestern Bukowina, and Northeastern Hungary), it set all forces to work to destroy the national independence of the Ukrainians as well. In the 17th and 18th Centuries the Ukrainian Nation lost its upper classes—the aristocracy, the lesser nobility, the wealthy burghers—first thru Polonization, then thru Russification. It had left only its minor clergy, its lower middle class, and a completely downtrodden peasantry. Thus, at the end of the 18th Century, it seemed as if the last hour of the Ukrainian people had struck.

It is therefore easy to explain that in the 19th Century, when the national question became one of the most important problems of humanity, the two neighbor nations of the Ukraine, the Poles and the Russians, believed they had solved the "Ukrainian question."

The views of Poles and Russians coincide absolutely in emphasizing one statement: "There is no such country as the Ukraine; no such people as the Ukrainians; there are only Poland and Russia; a Polish nation and a Russian nation."

This complete agreement of both nations, whose giant states fought for two centuries for domination in Eastern Europe, may be easily understood. The Ukraine has always

been the richest region of Eastern Europe in natural resources, the Ukrainians the second largest nation, the Ukrainian question the most important problem in every state commanding Eastern Europe. Now the Ukrainian nation was completely exhausted by half a thousand years of Tatar oppression and an equally long period of serfdom. So that it seemed an easy matter to the mighty neighbor nations to even deny the existence of the Ukrainian nation, to hold up its development, and gradually to absorb it.

The Poles, since their country lost its independence, have made heroic attempts to win back their freedom by armed uprisings. Despite all defeats, they have never given up their hopes of re-establishing the Polish Kingdom. But these hopes were never confined to the ethnographic territory of the Polish nation. The future Polish Kingdom was to have the old boundaries of the historic Poland—the Baltic and the Black Sea. Hence, the geographical conception of Poland, even to the scientific Polish geographers, still includes, besides the entire Polish ethnographic territory, Lithuania, White Russia and all of the Ukraine, as far as the Dnieper River and the Black Sea.

How could this historico-geographical conception of Poland be made to harmonize with the ethnographic conception of the Ukraine? The solution of this question seemed very easy to the Polish scholars and politicians. They simply proved that the Ukrainians constituted a part of the Polish nation, that their language was a provincial dialect of the Polish language, and that only the religious faith, a number of manners and customs, songs, etc., were slightly different from those of the Poles; these slight differences the common country folk might retain, likewise the educated Ukrainian might be permitted to keep his language and customs in private life, but in his political sentiments, in his culture, in his literary language, he must be and remain a Pole.

This Polish solution of the Ukrainian question is derived from the Polish "state-idea" of a Polish Empire extending from the Baltic to the Black Sea. Despite the fact that the history of the national relations of Eastern Europe clearly proved this solution false in the second half of the 19th Century, the opinion prevails in all important Polish circles, that the Ukrainian people merely constitutes an ethnographic mass which shall make a good foundation for the expansion of Polish culture and power.

This Polish theory in the Ukrainian question has not been detrimental to the development of the Ukrainian nation. That the Ukrainians are not a Polish people was quite clear to every Ukrainian at the very beginning of the relations of the two nations (11th Century). Among the masses the feeling of independence was always lively and strong, and only those of the educated Ukrainians credited Polonophile theories, who were the few members of Polish secret societies, plots, uprisings (1831, 1863), etc. Polonization, in former centuries, demanded many victims from among the educated Ukrainians; in the past half a century it has only very slight successes to show, altho the Ukrainians of Galicia still continue to be under the political and cultural influence of the Poles.

Much more dangerous for the Ukrainians was the other solution of the Ukrainian question. It, too, is derived from a state-idea, namely, from the idea of a Russian state which should unite all Slavdom, or at least, all of the one-time Empire of Vladimir the Great, under its scepter. In order to attain this end the "Theory of the Unity of the Russian Nation" was formed, as far back as the times of Peter the Great, who transformed the old Muscovite Czar state into an imperial Russian government, and later this doctrine was further developed. According to this theory the Russian nation consists of three tribes: the Great Russians, the Little Russians, and the White Russians,

whose tongues differ from one another only dialectically. A common literary language, Russian, connects all the tribes; race, customs, history, political aspirations are the same for all three. Ukraine, Ukrainian, are only local names, which, however, bear a strong taint of separatism, and must, therefore, appear dangerous and inadmissible.

In the spirit of this theory of the unity of the Russian nation, the politics of the Russian state have, for more than two centuries, aimed incessantly to hinder the development of the Ukrainian nation, by means of the most ruthless oppression, and to degrade it to an ethnographic mass which, thru its increasing denationalization, should strengthen the Russian state and support its political expansion.

In a later section we shall be able to follow the individual phases of Russian state politics in regard to the Ukraine. We shall turn, now, to consider the great injury which the Russian unity theory has done to the progress of the Ukrainians as a nation.

The internal injury of the Russian unity theory to the Ukrainian peasantry is comparatively slight. The Ukrainian peasant in Russia is much more highly conscious of his national individuality as opposed to the Russian than as opposed to the Pole. The ethnologic culture of the Ukrainian peasantry is so much higher than that of the Russian, that the Ukrainian looks down with contempt upon the "rough Katzap." This, as it were, ethnologic feeling of independence has protected the Ukrainian peasantry from Russification, not only within its national territory, but even in its distant Siberian or Turkestan colonies. Only a small part of the so-called village aristocracy, *e. g.*, pensioned soldiers, village mayors, notaries, former city workmen who have learnt some Russian, try to murder the Russian language and to pass for Russians. The same is true of a part of the city proletariat. But the

great mass is opposed to the Russian language and customs, and preserves its national individuality unchanged.

Far more serious injuries has the Russian unity theory caused among the upper classes of the Ukrainian nation. For the sake of office, honors and gifts of land, the Ukrainian nobility has, in the last two centuries, permitted itself to be Russified for the most part; likewise a host of government officials, military men, clergymen, etc. In the second half of the 19th Century the Russification of the educated Ukrainian circles has slackened its pace, altho, even now, there are in Russia a great many of the educated Ukrainians by birth who are completely Russified and the worst enemies of their own nation.

The Russian unity theory, in the sixties of the 19th Century, found its way into Austria-Hungary too, and founded the so-called "Russophile Party." Its educated retainers, with few exceptions, do not even command the Russian language. Nevertheless, they call themselves Russians, propagate "the unity of the Russian People from the Carpathians to the Kamchatka," and call their Ukrainian mother-tongue "a dialect of the Carpathian herdsmen and swineherds." They speak and write a remarkable jargon consisting of Ukrainian, Russian and Church-Slavic words (the so-called Yazichiye); only in very recent years have they begun to use a bad Russian. Supported by considerable subsidies of money from Russia, the educated Russophiles are developing an active agitation among the peasants of Eastern Galicia, the Bukowina and Northeastern Hungary. The Russophile peasants of these countries, whose number is insignificant, to be sure, constitute a remarkable type of a seduced mass. They also try to speak the Yazichiye, use the old-fashioned "thousand-year-old" orthography, which is entirely analogous to the Russian and, at least, partly hides the differences between the Ukrainian and Russian languages,

are all of them more or less heterogeneous peoples, and show no uniform anthropological type. This is true especially of the Western and Central European cultured peoples: French, English, Spanish, Italians, even Germans. Continued commixtures, which can certainly be proved historically, have entirely eradicated the original anthropological characteristics of these civilized nations. No wonder, then, that anthropogeography, in view of these most apparent examples, has almost given up designating anthropological characteristics as the characteristics of nations.

But, in considering an Eastern European nation, such misgivings of anthropogeographical science cannot be justified. Just as the physico-geographic conditions of Western and Central Europe are measured by other standards than those of Eastern Europe, so the anthropogeographical problems of this region, too, must be approached differently. Just as the physico-geographical variety of Western and Central Europe gives way to Eastern European uniformity in Ukrainian territory, so the anthropological variety gives place to greater unity. Vast areas of the Ukraine, even without any great natural hindrance, were always unfavorable to separation into classes, and did not encourage the development of physical differences. And foreign admixtures are almost out of the question. For the foreign peoples which, since the earliest beginnings of history, traversed or even dominated the region of the Ukraine, were first of all too small in number to make any noticeable impression on the anthropological type of the Ukrainians. And, besides that, the foreign races—almost all nomad peoples—came into the land as fierce enemies, with whom there existed no voluntary peaceful relations. For these reasons the Ukrainian nation reveals a much greater uniformity in its anthropological aspect than the nations of Western and Central Europe,

which, in the course of history, were visited by innumerable peoples of the most varied anthropological types, who stayed there and were assimilated. If, therefore, in these peoples, anthropological characteristics can have no particular significance, the matter is quite different with the Ukrainians and many other Eastern European nations. Here, anthropological peculiarities still have considerable weight as distinguishing characteristics of nations.

Investigations concerning the anthropology of the Ukrainians began more than half a century ago. But they were made, without any system, in different regions of the great national territory selected, quite without a plan, and for a long time gave no acceptable results. Not until the 20th Century was enough material gathered to at least make it possible to determine the main anthropological type of the Ukrainians. The most important investigators in this field are: Hopernitsky, Protzenko, Welker, Popov, Hilchenko, Krasnov, Petrov, Erckert, Emme, Talko Hrincewich, Diebold, Biloyid, Anuchin, Ivanovsky, Vovk and Rakovsky.

To be sure, according to these investigations, the Ukrainians, too, are anthropologically a mixed race, just as the other nations of Europe. But the formation of this mixed race took place in a very distant prehistoric past and later admixtures have been too insignificant to visibly change the original racial type of the Ukrainians. From the Vislok to the Kuban, from the Pripet to the Black Sea, the Ukrainian people constitute a uniform anthropological type. This type has preserved itself in its purest state in one wide zone which embraces the Ukrainian Carpathian Mountain lands, Pokutye, Podolia, Dnieper Plateau and Dnieper Plain, the Donetz Plateau and the Kuban sub-Caucasus country. Tall stature, with long legs and broad shoulders, strongly pigmented complexion, dark, rich, curly hair, rounded head and long face with a high and

broad brow, dark eyes, straight nose, strongly developed elongated lower part of the face, medium mouth and small ears; that is the type. Outside the described main zone of distribution of the Ukrainian racial type, these characteristics become less and less sharply defined, altho at all parts of the ethnographic boundary the anthropological differences of the Ukrainians from their neighbors, especially from the Poles, White Russians and Russians, are very clearly marked.

The mean stature of the Ukrainians is 1670 mm. Consequently the Ukrainians are among the tallest peoples of Europe, and in this respect they surpass their neighboring nations by a great deal. The average height of the White Russians is only 1651 mm., the Poles 1654 mm., the Russian 1657 mm., of 100 individuals among the Ukrainians, 53 are taller than the average, 47 shorter; among the Poles and Russians 51% taller and 49% shorter. Right here we see a great difference between the Ukrainians and their neighbors, as well as a great similarity of these three peoples.

The tall stature of the pure Ukrainian racial type is pretty regular in the above-mentioned main zone. The tallest stature is that of the Kuban Ukrainians of the sub-Caucasus country (1701 mm.). It is due to the fact that the Ukrainians of that region are, to a great extent, descendants of the Zaporog Cossacks, who for centuries represented the flower of the physical power of the Ukrainian people. Barely below that is the stature of the Hutzuls (1693 mm.), of the Podolians, Volhynians and Dnieper dwellers. In Central Galicia, Podlakhia, Polissye, in the Don country, that is in direct proximity to the Poles, White Russians and Russians, the stature of the Ukrainians decreases appreciably. But, even in these border countries, the Ukrainian people form a strong contrast, with their higher stature, to their neighbors, especially to the Russians,

with their heavy mixture of the small grown Finnish-Mongolian elements. Anuchin emphasizes expressly that in those parts in any Russian "Government" into which the smallest tip of Ukrainian territory extends, the average height of the recruits is noticeably increased. Because of their fine stature many Ukrainians in Russia are stationed in the regiments of the guard.

In the Ukrainians, the tall slender form is coupled with breadth of shoulders and great *chest-measurement.* From the material gathered by Ivanosky, it is evident that in this respect the Ukrainians surpass all their neighbors. The average chest-measurement of the Ukrainians is 55.04% of the length of the body, of the Poles 54.11, of the White Russians 53.84, of the Russians only 52.18.

In respect of *length of arms and legs*, the Ukrainians again occupy an independent position among the nations of Eastern Europe. In the White Russians, the length of the arms is 45.1% of the length of the body, in the Poles and Ukrainians 45.7, in the Russians 46.0. The length of the legs is greatest in the Ukrainians (53.6%), much less in the Poles (52.1) and White Russians (51.7), and least in the Russians (50.5), which again indicates considerable mixture of Finnish-Mongolian blood. (The length of leg of the Mordvines is only 49%, that of the Altaic Tartars 48.6).

The most important anthropological characteristic was for a long time thought to be the *shape of the skull.* The Ukrainians belong (as do all Slavs, for that matter) to the class of *Brachicephalites* (short heads). The average *skull index* in the Ukrainians amounts to 83.2. Among the neighboring peoples, the Poles (82.1) are least short-headed, then follow the Russians, almost the same as the Poles (namely 82.3), and then further away the Ukrainians (83.2). The greatest Brachicephalousness appears in the White Russians (85.1). The height of the skull is greatest

in the Ukrainians (70.3), smaller in the Russians (70.1), smallest in the White Russians (66.1).

The skull index of the Ukrainians shows a similar territorial distribution as the stature. The greatest brachicephalousness is found in the Hutzuls; it decreases continually as we go northeast and east, so that in the Don and Kuban region the skull index is smallest. Besides, the shortness of head of the Ukrainians decreases regularly on the Polish and Russian borders, as a result of centuries of proximity. In the Russians the shortness of head is much less marked than in the Ukrainians, because of the Finnish strain, in the Poles because of the commixture with Finns and a primeval European long-headed and light-haired race.

Just as in the shape of the skull, so also in the *form of the nose*, the Ukrainians reveal distinct differences from their neighbors. In the Ukrainians the nose is usually straight and thin. The nasal index is 67.7, and consequently somewhat greater than in the Poles (66.2). Then follow the Russians (68.5) and the White Russians (69.2).

The width of the face in the Ukrainians is on the average 180, that of the Poles 181, of the Russians 182, of the White Russians 186; the facial index in the Ukrainians 78.1, in the White Russians 76.2, in the Poles 76.3, in the Russians 76.7. Here, too, we note the great difference of the Ukrainians from their neighbors and the similarity of these to one another.

The color of hair and eyes is by far not so sure an anthropological characteristic as the above-mentioned, yet constitutes an important complement. In this respect, too, the position of the Ukrainians among their neighbor nations is just as independent as in regard to the above discussed characteristics. Among the Ukrainians dark shades predominate, so that out of 100 individuals only 29.5% have light hair and eyes, 35% medium color, and

35% dark. In the Russians the percentages run 37% light, 41% medium, 22% dark; in the Poles 35% light, 46% medium and only 19% dark. Thus the light type is much more common in the neighboring races than in the Ukrainians.

In the distribution of color of eyes and hair in the Ukrainians the same territorial law holds as in the distribution of stature and shape of skull. In the main zone of the Ukrainian racial type, but especially in the southwest, the color of hair and eyes is most characteristically represented. Near the Polish, White Russian and Russian borders, the Ukrainian type loses much of its peculiarity.

This short anthropological sketch of the Ukrainians, despite its scanty and general character, enables us to perceive very clearly *that the Ukrainians show extremely little anthropological similarity to the Poles, White Russians and Russians.* On the other hand, all of these neighboring races of the Ukrainians are very similar, and closely related to each other. The Pole, the White Russian and the Russian, stand very close to one another, while the Ukrainian is very different from all his neighbors and, from an anthropological point of view, holds an entirely independent position.

The vanity of the impression that the Ukrainians are Polonized Russians or Russified Poles, therefore, becomes apparent at once. The "unity theories," Polish and Russian, which are based on perverted historical and philological phrases, are here opposed by a natural science, with its exact results of investigations.

But anthropology discredits not only these theories which are still dominating European science. Several Polish historians have recently evolved a new theory of the origin of the Ukrainians and spread it thru Europe. According to this theory the Ukrainians are a mixture of Slavs and the Mongolian-Turkish nomad tribes which

traversed and commanded the Ukrainian steppes for centuries; they are a semi-nomadic steppe people, incapable of culture, whose development might bring with it the greatest dangers for European civilization.

The science of anthropology, however, robs this theory of its very foundation. The Mongolian-Turkish nomad tribes were almost all distinguished by low stature, short legs, long arms and round heads. The same characteristics should therefore appear very distinctly in the Ukrainian racial type. But the Ukrainians have a higher stature than any of the neighboring peoples, the longest legs, and arms of medium length. And the brachicephalousness of the Ukrainians is least just in the east, where mixing with the Mongolian tribes could proceed most easily.

The anthropological type of the Ukrainians, then, reveals complete individuality as opposed to the Polish, White Russian and Russian type, and betrays no noticeable trace of a Mongolian admixture. The difference of the Ukrainian type from the types of other Eastern Slavs caught the attention of the great geographer, Reclus, in the eighties of the past century. At that time he noticed the closer relationship of the Ukrainians to the Southern Slavs. Toward the end of the 19th Century, Hamy divided all the Slavs into two large groups, a tall brachicephalous group with dark hair, and a short, less brachicephalous group with light hair. In the first group he included the Serbians, Croatians, Slovenes, Czechs and Ukrainians; in the second the Polabians, Poles, White Russians and Russians. A similar division was accepted also by Deniker. According to his view the Ukrainians belong to the so-called Adriatic (Dinaric) Race, while the Poles and the Russians belong to the two closely related races, the Vistula Race and the Oriental Race, respectively. The Adriatic Race has recently come to be considered by many the specifically Slavic Race. However, it has remained comparatively

pure only in the case of the Southern Slavs and the Ukrainians, while the Northern Slavic races reveal strong foreign admixtures.

Anthropology shows us, in the Ukrainians, a finely grown, physically sturdy race of men. Another characteristic of the Ukrainian People is its great fecundity. Wherever the Ukrainian People has not yet degenerated thru social pressure and the spread of pauperism, it shows remarkably high birth figures, which, despite the high infant mortality resulting from the low grade of culture, occasion a very rapid increase in population. The birth rate and rate of increase (1900-1904) for the central districts of the Ukraine in European Russia are on the average yearly: Volhynia 4.5% and 2%, Podolia 4.3% and 1.8%, Kiev 4% and 1.4%, Kherson 4.5% and 2%, Tauria 4.2% and 1.9%, Katerinoslav 5.6% and 2.8%, Chernihiv 4.6% and 2%m, Poltava 4.3% and 1.9%, Kharkiv 4.9% and 2%. Galicia, in the early years of the century, has had a yearly increase in population of 1.6 to 1.8%. These figures, which are much higher than the corresponding figures in Polish or Russian national territory, constitute one of the less agreeable facts which enable us to look with confidence toward the future of the Ukrainian nation. For the greater increase of the Ukrainians is not due to a higher state of culture of the neighbor nations. The Polish and Russian peasantry is not only not superior to the Ukrainan in respect to culture, but, on the contrary, inferior. The greater increase of the Ukrainians is connected only with their superior racial qualities.

## The Ukrainian Language

Language is not an absolutely necessary distinguishing characteristic of a nation, as is shown by the examples of the Swiss, the North Americans, and the Spanish and Portuguese daughter-nations in America. If the Ukrainians,

determining to be considered an independent nation, had the remaining characteristics of an independent nation, they would certainly be one even if their language were identical with the Russian, White Russian or Polish.

But, in this regard, the Ukrainians are in the favorable position of really calling an independent language their own. To be sure, the opinion has been to a great extent spread thruout Europe that the Ukrainian language is a rural dialect of the Polish language, and official Russia is still encouraging the view that there is only a "Little Russian dialect" of the Russian language; European science and publicism opened the doors to both the above-mentioned unity theories, and the Russian unity theory has become the solely dominating one even in German science.

Slavic philology passes a different judgment. With the exception of a few Pan-Russian philologists (Florinsky, etc.), who, as a matter of fact, are not capable philologists at all, the entire philological profession is decided on the point that the Ukrainian language is related to the Russian and the Polish only to the extent that the Serbian and Bulgarian are, for instance, or the Polish and Czechic. The investigations of Miklosich, Malinovsky, Dahl, Maksimovich, Potebnia, Zitetsky, Ohonovsky, Shakhmatov, Broch, Baudouin de Courtenay, Fortunatov, Korsh, Krimsky, Satotsky, and others, have proved beyond a doubt that the Ukrainian language is not a dialect of the Russian language, but an independent language of equal rank with the Russian. The same opinion has been expressed most forcibly by the St. Petersburg Academy of Sciences in its famous official decision, "Concerning the Removal of the Restrictions on Little Russian Publications, St. Petersburg, 1905." The Academy emphasized expressly that the Russian and Ukrainian languages are two independent languages of equal rank. The Russian written language is not built up on a general East Slavic, but only on a Great Russian

foundation. Hence, it cannot be forced upon the Ukrainians, since they have a completely developed written language at their command.

It is very likely that, in a far distant prehistoric time, all Eastern Slavic tribes, the ancestors of the present Ukrainians, White Russians and Russians, spoke a common tongue. But soon after the beginnings of historical life in Eastern Europe we see these Slavic races divided lingually into three groups. In the 11th Century, the differences between the language spoken in Kiev or Halich on the one hand, and Vladimir on the Klasma or Sugdal on the other, were already distinct. The political unification of all the Eastern Slavic tribes in the Kiev Empire could not eradicate these differences between North and South, and they are very evident in the literary monuments of that time. The disruption of the Empire of Kiev into loosely connected principalities, the formation of the Muscovite political center, the decline of Kiev—all went to strengthen the lingual antitheses between the ancestors of the Ukrainians and those of the Russians. The Tatar oppression finally separated the Muscovite group permanently from the Ukrainian, forcing each to lead a separate historical life. The Ukraine fell under Lithuanian, then Polish rule; Muscovy gradually developed into the Russian Empire. The differences in language, which in the 14th Century were already appreciable, increased so strongly thru the independent development of each language that in the 18th Century, when Russia received the greatest part of the Ukraine beneath her dominion, the Russian and Ukrainian languages confronted one another as entirely independent languages.

According to the investigations of Stozky and Gartner, the Ukrainian language, from a philological point of view, is related to the Russian only to about the same extent that it is related to the Polish or Czechic. Of all Slavic

languages the nearest to the Ukrainian is the Serbo-Croatian. From this it follows that the Ukrainians must at one time have had a much closer community with the Serbo-Croations than with the Russians.

We see here a fine example of how relationship of languages goes hand in hand with anthropological relationship. (Incidentally, proof is herewith presented that the anthropological characteristics in the peoples of Eastern Europe have an entirely different significance from the same in Western and Central Europe). This coincidence of two sciences, entirely independent of one another, causes the Ukrainians to appear to us a very peculiar independent unit in the Slavic family of races. Only the restriction of the knowledge of Ukrainian among Slavists, the interpretation of Eastern European history always from the Russian point of view, the common church language, which, for a long time, was the basis of the written language as well, the unfortunate confusion due to the name Russ, Russki, which as ancient state designations for the Empire of Kiev were usurped by the Muscovite Empire and applied to all Eastern Slavic nations; these things have made it possible to conceal the real state of affairs from the eyes of European science and have helped establish the Russian unity theory.

That the Ukrainian language is independent and entirely different from Russian or Polish is known to every illiterate peasant from one end of the Ukraine to the other. He does not understand the Pole and the Russian; likewise his language is unintelligible to a Pole or Russian. Polish is the more easily understood by the uneducated Ukrainian, since the living together of the Poles and Ukrainians for centuries in the Polish-Lithuanian state resulted in important influences in both directions, especially in the vocabulary. But Russian, with its strange vocabulary and phonetic character, different manner of word-building,

declension and conjugation, is for a Ukrainian a difficult foreign language. How much trouble must the Ukrainian peasantry endure at every step because the unintelligible Russian language is used exclusively in administration, court, school and church! The educated Ukrainian who has been trained in Russian schools has had much trouble to learn his Russian, and he never has so complete a command of it that a Russian could not immediately recognize "the Khakhol in him." For an educated Ukrainian trained outside of Russia, Russian is as hard to learn, if not more so, than the Polish, Czechic or Serbian. Such obvious facts convince us of the independence of the Ukrainian language, perhaps, more forcibly than the arguments of learned philologists.

The Ukrainian language, like every other great European language, is not uniform. Because of the great extent of the Ukrainian territory and the great population, favorable conditions have always been present for the formation of dialects and idioms. The Ukrainian language has four dialects,—the South Ukrainian, the North Ukrainian, the Galician (Red Ruthenian), and the Carpathian mountain dialect. The South Ukrainian dialect embraces the south of the region of Kiev, Kursk, Voroniz, the entire regions of Poltava, Kharkiv, Kherson, Katerinoslav, Tauria, Don and Kuban. It possesses three idioms;—the northern, which constitutes the basis of the present Ukrainian literary language, the central, and the southern or steppe idiom. The North Ukrainian dialect includes the Chernihov country, the northern part of the Kiev district, Northern Volhynia, the Polissye along the Pripet, and the northern part of the Pidlassye. Its idioms are the Chernihov, the North Ukrainian proper, the Polissian, and the Black Ruthenian. The Galician or Ruthenian dialect takes in: Galicia (outside of the mountains), the Kholm region, Southern Volhynia and Western Podolia, and possesses

two idioms,—the Podolian-Volhynian and the Galician (Dniester) idiom. The Carpathian Mountain dialect includes the entire Ukrainian Carpathian country and has four idioms,—the Hutzulian, the Boikish, the Lemko idiom, and the Slovak-Ruthenian border-idiom.

The Ukrainian dialects and idioms differ very little from one another, as indeed is the case with all the dialects and idioms of all the Slavic languages. A comparison of the Ukrainian dialects and idioms with the German, for instance, is entirely impossible. The Kuban Cossack or the Boiko, an Ukrainian inhabitant of Polissye or of Bessarabia, understand one another without the slightest difficulty. Only the Lemko idiom and Ruthenian-Slovak border-idiom show greater differences than other Ukrainian idioms. Beyond that, a great uniformity of language prevails thruout the wide areas of the Ukraine. A popular tale taken on a phonograph in the Kuban sub-Caucasus country is heard with the same understanding in a peasants' reading society in the neighborhood of Peremishl, as if it came from a neighboring village, instead of a border country of the Ukraine thousands of kilometers distant. The same folk-songs, proverbs and fairy tales are found in Pidlassye and along the Manich, at Chernihiv and Odessa, on the Don and on the Dniester.

The Ukrainian language is distinguished by advantages which insure it a high place among Slavic languages. The great wealth of vowels, the full tone, the softness and flexibility, the transition of many vowels to the i-sound, the absence of the massing of several consonants in one syllable, make Ukrainian the most melodious Slavic language. After the Italian language the Ukrainian is best adapted for singing. Most important, however, is the great richness of the Ukrainian language. This richness is all the more remarkable in that it did not come about thru centuries of development of the language in literature and science.

The common people have collected and preserved the treasures of the Ukrainian language. While the vocabulary of an English farmer, according to Ratzel, does not include more than three hundred words, the Ukrainian peasant uses as many thousands. And, incidentally, the purity of the language is remarkable. Barely a few borrowed words have been introduced into the language of the people thru the centuries of contact with neighboring peoples. They disappear entirely amid the wealth of pure Ukrainian words. What interests us geographers and natural scientists most of all is the wonderful wealth of the colloquial language in very striking names for surface forms, natural phenomena, plants and animals. The construction and codification of the Ukrainian terminology of natural sciences and geography was, therefore, very easy. The infant science of the Ukraine possesses a terminology which, for example, far surpasses the Russian.

The most important proofs of the independence of the Ukrainian language are Ukrainian literature and Ukrainian science. The Ukrainian language has given proof, thru its development of a thousand years, that it is capable of giving expression to the loftiest products of human feeling and human intellect.

Ukrainian national literature cannot possibly be compared with the literature of a Provençal or Low German dialect, which represents the daily life of a small group of people. Ukrainian Literature is the versatile literature of a great nation; a literature which looks back upon a history of a thousand years and continues to develop in spite of all obstacles. A strong foundation is furnished it in the remarkably rich, popular poetry, which has not a counterpart in the entire civilized world.

Ukrainian Literature holds a high place among Slavic literatures. Only Russian and Polish Literature surpass it in the number and greatness of their works.

The history of almost a thousand years of Ukrainian Literature begins at the time of the fullest development of the Kiev Empire, when the so-called Chronicle of Nestor originated, the Galician-Volhynian Chronicle, the powerful Epic of Igor and other important monuments of Ukrainian Literature (the works of Ilarion, Serapion, Kirilo Turivsky, etc.). Their language is built up upon the Church-Slavonic dialect, but presents great linguistic departures, as early as the 11th Century, from the literary works simultaneously produced in the Russian territory to the north.

This promising beginning of the old Ukrainian Literature was almost completely crushed by five centuries of Tatar barbarism. The continuous state of war, the loss of their independent political organization, the crushing foreign yoke, permitted only a weak vegetating of Ukrainian Literature for five centuries. Legal, theological, philosophical and polemic literary monuments and the beginnings of the drama, written in a Macaronic language made up of a mixture of Ukrainian and Church-Slavonic, can at the most be considered proof that the educated Ukrainians of that time had too little leisure and opportunity to devote themselves to artistic literature.

But these times of decline of the written literature are at once the times of the greatest flourishing of the unwritten literature of the people. The old pre-christian religious and secular songs and tales were not forgotten, and the active, warlike life of the nation created an immense mass of epic folk-lore *dumy*, which was sung by by wandering minstrels (*kobzar*, *bandurist*). Toward the end of the 18th Century, when the political and national destruction of the Ukrainian nation seemed inevitable, the Ukrainian popular literature reached such a high stage of development that it awoke the educated classes of the nation to new literary life.

Through the introduction of the pure popular speech

into Ukrainian Literature (by Kotlarevsky, in 1798), and thru the great influence of the popular literature, the foundation was laid for an unanticipated rise of Ukrainian Literature. In the course of the 19th Century the history of Ukrainian Literature has a number of great poets and prose writers to show, who would be a credit even to the greatest literatures of the world (Shevchenko, Vovchok, Kulish, Fedkovich, Franko, Mirni, Kotsiubinsky, Vinnichenko and others), as well as a considerable number of lesser poets. Great versatility characterizes the works of Ukrainian Literature in the 19th Century, and in the 20th Century its development in all directions is making giant strides.

The second half of the 19th Century was also marked by a very active study of the sciences, leading to the founding of two learned bodies very much along the plan of the so-called "Academies" (in Lemberg and Kiev). In every branch of human knowledge the Ukrainians can already point to publications, books and dissertations in their own language.

The versatility and richness of Ukrainian Literature assure it a prominent place among Slavonic literatures, thus furnishing proof, if any is needed, that the Ukrainian language is not a mere dialect, but a civilized language in every sense of the word; and the testimony of Ukrainian scholarship strengthens the case beyond a doubt. For surely nobody could discuss problems of higher mathematics, biology or geomorphology in a dialect analogous to the Provençal or Low German.

The rise of the Ukrainian literary language from the speech of the common people makes clear that it will be an admirable means of educating the race, in view of its well-known intelligence, into an enlightened and progressive nation. But the Russian government has been thoroughly aware of this, and for fear of national separatism, has left

no stone unturned in its efforts to stop the development of Ukrainian Literature and, finally, by the famous ukase of the Czar of the year 1876 *has forbidden absolutely the publication of any writings in the Ukrainian language.* None but a really living and significant literature could have survived these thirty years (1876—1905) of repression, and Ukrainian Literature has stood the test!

## Historico-Political Traditions and Aspirations of the Ukrainians

Anthropological and lingual distinguishing characteristics are not sufficient to make a race into a nation. An individual nation, whether it be a *Staatsnation* or a *Kulturnation*, must have its own historical tradition, its own sacrifices and heroes, its own historical griefs and joys. These are the basis of the united aspiration to an ideal of the future, of that constant plebescite which E. Renan regards as the thing which makes a race into a nation.

Now it is really the historico-political traditions which are very strongly developed in the Ukrainians. The story of his fatherland, full of the most terrible catastrophes, with the frightful Tatar menace and the oppression enduring for centuries, still lives in the consciousness of even the most uneducated Ukrainian. How few happy moments does the history of the Ukraine present, and yet no people in the world so dearly loves its past and so piously honors its national heroes as the Ukrainian People. And in this connection I do not mean the educated Ukrainians who know the history of their country, but the illiterate peasant, who recalls in his songs the naval expeditions to Constantinople, the old princes of the Kiev dynasty, the hetmans, and the great commanders of the Cossack period.

It is the historico-political tradition, living even in the lowest ranks of the nation, that gives the Ukrainians their most important indications of separate national existence.

And, had it not been for the dense ignorance that prevails in Western Europe regarding the history of the eastern half of the continent, and for the advertising carried on to this very day by Russian scholars in behalf of their propaganda for "Russian" history, which has worked its way into all the history books, this real condition of affairs could never have been obscured so long. We shall now attempt to determine the main lines of the Ukrainian historical tradition, basing our exposition on the works of Kostomariv, Antonovich, Drahomaniv, Hrushevsky and others.

The historical life of the Ukrainian Nation has been of an entirely different type from that of the Poles or Russians. Hence, the historical traditions and, consequently, the present political aspirations of the three nations, are entirely different.

The Ukrainian historical tradition has its roots in the ancient Kingdom of Kiev. Altho the historians of Eastern Europe are still undecided as to whether the so-called Old Russian Kingdom was founded by the Varangians in the present Northern Russia, or by the Eastern Slavic tribes of the south in Kiev, I have no doubt that the latter view should be approved. Anthropogeography knows no instance of a pirate band, at most a few thousand strong, which, within a few decades, could constitute a kingdom embracing half a continent. The Normans, to be sure, were able to found governments in Normandy, Naples and Sicily; they were even able to conquer the England of their day and to settle there, because everywhere they could take advantage of already existing state organizations and modify them to suit their purpose. Whenever the state organization was just in its beginnings, as for instance, in their own country, the Normans exhibited no particular capacity for state-organization.

The ancient Kingdom of Kiev, which is called "Old

Russian" in all historical works, was a state organized by the southern group of the Eastern Slavic races, particularly the Polan race around Kiev. The tribal chiefs, who had grown rich thru commercial relations with Byzantium, founded the State of Kiev. This government was already in existence in the beginning of the 9th Century. With the aid of mercenaries from Scandinavia (Varangians) who, since the middle of the 9th Century, had been serving in the armies of the princes of Kiev, the Kingdom during the 10th Century gave remarkable evidences of a very unusual activity of expansion. The Northern Slavic tribes, the forbears of the Russians of today, were subjugated, the nomadic tribes of the steppes were driven back, commercial and cultural relations were established with the Byzantine Empire. In the year 988 the Great Prince of Kiev (Vladimir the Great), together with all his peoples accepted Greek Christianity—with Slavic rites. There ensued, especially under his successor, Yaroslav the wise, a great advance in the material and spiritual civilization of the ancient Ukrainians.

The fact that the ancient state of Kiev, as well as its civilization, was produced by the ancient Ukrainians, is evident, not only from the fact that the most ancient literary monuments of Kiev already show specifically Ukrainian peculiarities of language. A still more important piece of evidence is the constitution of the Kingdom of Kiev, which originated thru the amalgamation of the newly organized royal power with the original republican constitution of the Ukrainians.

The ancient clan constitution has been of as fundamental importance for the historico-political tradition of the Ukraine as the Kingdom of Kiev itself.

All the power of government rested originally in the hands of the general assembly of all freemen, whose decrees were executed by elected officials, consisting in part of the war-chieftains (probably the later princes). In the ancient

Kingdom of Kiev there was constant opposition between the power of the princes, which originated later and rested on military might, and the power of the clan assembly, sanctioned by long tradition. The Prince, his retainers, and the Boyar nobility, which gradually developed out of the body of retainers, were never liked by the people. The Kingdom of Kiev grew out of the union of trade, and was a union which at that time was necessary. The governmental system established by the princes of the Kiev dynasty, on foreign models, was inherently alien to the original social-political system of the Ukrainian People, so that the amalgamation of these two elements was difficult, in fact, almost impossible.

Altho, as time passed, the General Assembly (*viche* — a name that is applied to all political assemblies of the Ukrainians to this day) partly regained their former power, and, altho at the same time various provisions of the original constitution sifted into the new governmental organization, monarchy, nevertheless, always remained something extraneous and unpleasant to the people. There is no wonder, therefore, that the State of Kiev never attained a power in keeping with its great territory and population. The people ostensibly supported everything which tended to weaken the power of the government. Thru the entire existence of the ancient Kingdom of Kiev, its Great Princes were forced to wrestle with the Boyar nobility and the people for absolute power. This limitation of the monarchic power turned out to be a disaster for the Kingdom of Kiev. By applying the practice of succession to the throne, in accordance with a principle known as that of "seniority," there resulted the formation of numerous petty principalities, all rather loosely, perhaps only nominally, subject to the authority of the Great Prince of Kiev. The Boyar caste and the people were very persistent in their labors to aid in the formation and maintenance of these petty princi-

palities thruout the southern portion of the Kingdom of Kiev.

At the same time, it is very probable that if the ancient State of Kiev had survived a longer time, the Ukrainian People would gradually have become accustomed to a constitution founded on caste and privilege. It would also have been possible, as early as the Middle Ages, for the Ukrainian People to attain a constitutional monarchy. But things happened differently.

The Kingdom, weakened by partitions, was soon confronted by a powerful enemy in the young Muscovite State which was formed by the northern petty principalities of the Kingdom. In a series of bloody wars with the Muscovite State, Kiev was so permanently weakened that the headquarters of Ukrainian political life had to be shifted southward, in the 13th Century, to Halich on the Dniester.

Then, the situation of this Kiev country was such as to expose it to continuous invasion on the part of the nomadic warlike tribes which infested the steppes of the Ukraine. But the nation managed to hold them in check during this weary term of warfare. When, however, the hosts of the Mongol potentate, Djingis Khan, appeared in the Pontian steppes, the resources of Kiev and Halich were no longer equal to the pressure. In the three days' battle on the Kalka (1224) their army was annihilated, and in 1240 the city of Kiev was razed to the ground. The principality (later kingdom) of Halich survived it by almost a century, but could not withstand the continued aggressions of the Tatars on the one side and of the Poles and Lithuanians on the other; in 1340 it was incorporated with Poland by right of succession, and thus ended the first national organization of the Ukrainian People. All the Ukraine, excepting the forest regions in the northwest, had been completely devastated.

The Polish-Lithuanian state treated the Ukraine as

conquered territory. Being now dissenters in the midst of a Catholic state, the Ukrainian nobles were limited in their prerogatives, and deserted their faith and their nationality, in order to have a share in the golden freedom of Poland. The burgher class was tyrannized (as was the practice all over Poland); the peasant became a serf. The splendid task of an ecclesiastical union with Rome was solved (Florence, 1439; Brest 1596) in an unsatisfactory manner and bore little fruit at the time. Every Ukrainian was made to feel the iron hand of the Polish government, and their dissatisfaction expressed itself in numerous rebellions. And yet the Polish-Lithuanian State was far too weak to protect the Ukraine against the onslaughts of the Tatars. Every year these hordes of riders sallied forth from the Crimea, pushing their invasions even as far as Galicia and Volhynia, devastating the country and depopulating it by seizures of slaves, conducted according to a systematic plan. The victims of this slave trade filled the markets of the Orient for centuries.

It was inevitable that this sorely-tried nation should take steps to defend itself. And its efforts were successful in that they led to the formation of a new independent state, but unsuccessful in that they exhausted its resources and later had a tragical outcome.

The constant state of warfare on the Tatar border forced the Ukrainian population in those parts to adopt a policy of continual "Preparedness." These fighting people of the marshes led a precarious life, but they had access to the virgin lands of the borders with all their natural treasures, and the exploiting Polish officials did not dare venture forth into these dangerous districts. These armed farmers, hunters and fishermen led an independent life and called themselves Cossacks, *i. e.*, "free warriors."

In the 16th Century there arose among these Ukrainian Cossacks a military state organization, the center of which

was a strongly fortified position below the rapids of the Dnieper (the Zaporog Sich). The Zaporog warrior state, compared by some to a religious order of knights (because of their compulsory celibacy and their wars against unbelievers), by others to a communistic republic, shows us most clearly what has always been the goal of the Ukrainian "political idea." In the Zaporog organization, absolute equality of all citizens in all political and social rights prevailed above all else. All authority was vested in the General Assembly of all the Zaporogs, and their decisions were enforced by elective officers who were, at the same time, officers of the army. The liberty of the individual was very great, but had to yield to the will of the whole. And when, in time of war, the General Assembly delegated unlimited dictatorial power to the highest official, the Hetman, it gave him a degree of authority with which the power of any one of the absolute rulers of Europe at the time could not be compared.

In the aristocratic state organization of Poland there was no room for such a lawless democratic state as that of the Zaporogs was in Polish eyes. The entire Ukrainian nation regarded the Zaporog Cossacks as their natural defenders against the terrible Tatar peril, and likewise as their sole hope as opposed to the oppression practiced by the Poles. An ominous discontent prevailed thruout the Ukraine, and after the Poles had naturally taken severe measures, a number of Cossack revolts occurred in rapid succession, beginning toward the end of the 16th Century and filling the first half of the 17th. In these revolts the Cossacks were supported by the oppressed peasantry. But the Polish Kingdom was rather deficient, always, as far as its standing army was concerned, and was obliged to appeal to the Ukrainian Cossack organization, which it could not possibly destroy, to aid in its wars against the Turks, the Russians and the Swedes.

Finally, in 1648, the Ukrainian Cossacks, aided by the entire people, from the Dnieper to the San, raised the standard of rebellion, and under the leadership of Bohdan Khmelnyzki, succeeded in annihilating the Polish armies. Thus the Ukrainian Nation fought for and won its independence again after three hundred years of a foreign yoke.

Chmelnyzki, after his victory over the Poles, extended the Cossack organization beyond the narrow bounds of the Zaporoze, over the entire huge area of the Ukraine.

Surrounded by enemies on all sides, the new state needed calm and quiet to enable it to achieve the necessary internal organization. Much time was needed to organize the new order completely in so enormous a country, to bring to a successful conclusion the fight against the Polish social-political order, which had prevailed here so long and was so different from the Ukrainian. It required much time to work out new constitutional forms, which were inevitable, now that the Zaporog organization was extended over great areas. Khmelnitsky negotiated with all the surrounding governments and peoples, with the Poles, the Transylvanians, the Swedes, the Turks, and finally, in 1654, concluded the treaty of Pereyaslav with Russia, with which they were related by ties of religion. This treaty provided that the Ukraine should retain a complete autonomy, as well as their Cossack organization, the latter under the suzerainty of the Czar. The Hetman, who was to be elected by the votes of the General Assembly, was even to retain the right of conducting an independent foreign policy.

But Russia had no mind to respect the treaty that bound it in dual alliance with the warlike Ukrainian nation. The democratic form of government in the Ukraine was an abomination to Russia, just as it was to aristocratic Poland.

Once the Cossack republic was under the control of

Moscow, the Russian government felt that not a stone must be left unturned to destroy this dangerous national organism. Taking advantage of the untimely death of Khmelnitsky (1657), and the incompetence of his immediate successors, Russia began her political machinations in the Ukraine. The Cossack generals were inspired with prejudice against the Hetman, the common Cossacks against their superior officers, and the common people against all who were wealthy and in authority; huge sums of money were spent, successfully, and vast tracts of land granted as fiefs; and Russia thus fished in troubled waters to very good advantage. At every successive election of a new Hetman the autonomy of the Ukraine was cut down, and in the Peace of Andrussovo (1667) with Poland, the country was partitioned. Of the two sections, one, that nearest to Poland, which had been dreadfully devastated and depopulated, was ceded to that country, and this section very soon lost its Ukrainian form of government and its Cossack organization. The section on the other side, the left side, east of the Dneiper, under its dashing Hetman, Mazeppa, made an effort, during the Scandinavian War, to throw off the Russian yoke. Mazeppa made an alliance with Charles XII of Sweden. But the Battle of Poltava (1709) buried all his hopes. He had to flee to Turkey with Charles XII, and the Ukrainian rebellion was put down by Peter the Great with the most frightful atrocities, and finally the guaranteed autonomy of the Ukraine was abolished. To be sure, the title of Hetman was again introduced after the death of Peter the Great, but it had only a wretched semblance of life. Even this shadow of autonomy was destroyed in 1764; in 1775 the last bulwark of the Ukraine, the Zaporog Sich, fell into the hands of the Russians thru treachery, and was destroyed by them. The peasants became serfs.

Russia thus succeeded, in the course of about a century

and a half, in completely wiping out the later, second Ukrainian state. The devious policy Russia was simultaneously carrying on in Poland, led also to the latter's downfall. In the successive partitions of Poland (1772—1795), the entire part of that nation which was inhabited by Ukrainians, with the exception of Eastern Galicia and the Bukowina, which fell to Austria, became the property of Russia.

But Russia was not satisfied with political domination alone. Russia already understood, in the 17th Century, that the Ukrainians differed entirely from the Russians in language, customs and views of life. The Russian government, therefore, inaugurated a policy of rigid repression of all these points of difference. As early as 1680 it prohibited any use of the Ukrainian language in ecclesiastical literature. In 1720, the printing of any Ukrainian books at all was forbidden. All Ukrainian schools were closed. In the middle of the 18th Century there were, in the province of Chernihov, 866 schools that had been founded during the period of Ukrainian autonomy; sixty years later not one of these was in existence. This, together with the attempt to introduce the Russian language, which none of them understands, is the cause of the overwhelming percentage of analphabets among the Ukrainians. The Ukrainian orthodox church, which enjoyed absolute autonomy, with a sort of loose subordination to the Patriarch of Constantinople, was made subject to the Patriarch of Moscow (later to the Holy Synod) and became completely Russified. The Greek-United faith, which had many adherents in the Western Ukraine, was completely suppressed by the Russian government, and all who confessed it were obliged, by the most terrible persecutions, to "return to the orthodox belief." The Ukrainian people became completely estranged from their former national church, which now is a tool wielded for purposes of Russification.

The bloody wars for independence which the Ukrainian

nation waged against Poland and Russia consequently brought no realization of its political ideals of liberty, equality, and a constitutional, democratic form of government. Instead came a terrible political, social and national oppression, which threatened to bring about the downfall of the tortured nation.

But the Russification of the Ukraine seemed to be making very little headway. To be sure, many educated Ukrainians, for the sake of personal advantage or for other considerations, did renounce their nationality, and some in fact, like Gogol, became great lights of Russian Literature. Yet there always remained the feeling of national independence, together with a living historical tradition, which continued to groan despite all obstacles. The rise of Ukrainian Literature did most to aid this great movement.

The idea of working for national independence was revived first in the Russian Ukraine, and found its logical starting point in the tradition of the one-time autonomy of the country. As early as the forties of the 19th Century, the national ideology of the modern Ukrainian movement was complete in all essential respects. It then made its way very rapidly to the Austrian Ukraine, and Galicia, particularly, soon became a national Piedmont to the Ukrainian people, who were so ruthlessly oppressed in Russia.

The present-day political efforts of the Ukrainian nation are a direct continuation of the former efforts, and a logical result of the historical tradition of the Ukraine. The ideal of these efforts was, and is, liberty and equality and the participation of all in government and legislation. Not until the present time has this ideal ceased to be an anachronism; only the present has opened to the Ukrainian nation a field of political activity; only in the present have these forms of political life, which the Ukrainian nation strove for, without success, so many centuries, become the

common possession of the entire civilized world. Hence, we may look with confidence toward the future. Now, at last, the times have come in which the Ukrainian nation may freely develop its political life; the times in which the political ideals which have been sacred to this nation for centuries, have become the common goal of civilized humanity.

The idea of the revival of the Ukrainian state developed gradually from a movement with modest aims to one of larger aims. It was generally recognized that the free development of the Ukrainian Nation could take place only outside of Russia. Hence, in the 20th Century, an independent democratic Ukraine, enclosed in its ethnographic boundaries, became the highest national ideal. Toward this goal all political parties of the Ukraine are striving today. The path leading to this goal is the fight for the autonomy of the Ukrainian territory in the frame of the states dominating it. In Russia, the efforts of the Ukrainians are almost hopeless. On the other hand, the Ukrainians place much hope in Austria, who has afforded her Ukrainians opportunities for political and cultural development.

The historico-political traditions of the Ukrainians are entirely different from those of the nations adjacent to them. The Polish tradition is a tradition of a one-time great kingdom, which was probably built up upon a local constitution similar to that of the oldest Ukrainian State. But fate permitted Poland to live thru the sorrowful period of partitions and civil wars, while, at the same time, the old Kingdom of Kiev was destroyed by the Mongols. Poland consolidated into a strong united kingdom, western influences destroyed the old local constitution entirely, the common people became serfs, and the classes of the aristocracy, nobility and bourgeoisie were formed. Thru wars, and particularly thru its union with Lithuania,

Poland increased considerably in size, for a time including almost the entire bridge of land between the Baltic and the Black Seas, and, in the 15th Century, became the most powerful state of Eastern Europe. At that time the Poles became the dominant race over the Lithuanians, White Russians, and Ukrainians. The entire ideology of the dominant caste became a characteristic of the Poles. In this very property of a ruling people lies the basis of the aristocratic nature of the historico-political tradition of the Poles. This aristocratic quality has a more important foundation in the historical development of Polish society. The middle class in Poland declined very rapidly, and the nobility and the magnates dominated the entire political, social and intellectual life of the country, so that Polish society, in the last centuries of the existence of the Polish kingdom, was purely aristocratic, and was supported on the backs of the completely submerged peasant and middle classes. Even tho, in the patrician republic, when the power of the kings was extremely limited, mobocracy or even anarchy very often prevailed, these forms also were aristocratic. This aristocratic tradition is responsible for the fact that democratic currents still find little encouragement among the Poles. Even the social democrats are obsessed with the Great-Polish state-idea.

From these facts, we perceive that the historico-political traditions of the Poles are entirely different from those of the Ukrainians. Just as great is the difference in their present aspirations. The Poles, with an endurance that is worthy of admiration, and awakens universal sympathy, are striving for the reorganization of their independent state. But not with ethnographic boundaries like the Ukrainians, but with ancient historical boundaries from the Baltic to the Dnieper and the Black Sea. To attain this goal, the Poles are trying, above all, to hinder the adjacent peoples, the Lithuanians, White Russians and Ukrainians, in their

national progress, and, whenever possible, to assimilate them. These efforts are responsible for the very sharp conflicts of the present day between the one-time rulers and their one-time subjects.

The Russian historico-political traditions are quite as different from and as opposed to those of the Ukrainians as the Polish, but in another direction. The Muscovite State was created out of the petty principalities which the ancient Kiev dynasty had founded among the Eastern Slavic races and the Finnish tribes of the north. From the blending of the Slavs and the Finns came the foundation of the present Russian or Great Russian (Muscovite) Nation. The name "Russian" was derived from the name of the dynasty. But the state was in reality simply Muscovite, for the Muscovite people gave this state a substance which was entirely different from the substance of the old Kingdom of Kiev. As early as the 12th Century we observe the Muscovite people striving for centralization and absolute power for the princes in their state. It was to the advantage of the prince to undermine the influence of the Boyar nobility and the clergy, and to attain absolute or even despotic power in the state. Not equal rights and liberty for all citizens as with the Ukrainians, or for certain classes as with the Poles, but the despotic authority of the Great Prince (later Czar), is the basis of the historico-political tradition of the Russian people. The absolute power of the ruler, that everlasting bugbear of the Poles and Ukrainians, becomes a sacred object to the Russian nation, and makes it possible for them to establish a Russian Empire which devours Poland and the Ukraine. For a comparison of the three adjacent states, the second half of the 16th Century affords the best illustration. At the same time that the radical-democratic Cossack republic originated in the Ukraine, and Poland was a paradise of golden freedom for the aristocrats and the nobility, with a

powerless kingship and a suppressed people, we witness in Russia the bloody orgies of the despotism of Ivan the Terrible.

The historico-political tradition of the Russian people places the Czar only slightly below God. The entire people, without class distinction, are slaves (*kholopi*) of the Czar, his property. The individual counts for nothing; everything must be sacrificed to the general good, which is embodied in the Czar. The reforms of Peter the Great, altho they gave Russia the external appearance of a civilized state, had no significance for the historico-political tradition of Russia. At most, they even strengthened the prestige of the absolute rule of the Czar, thru arguments repeated after the Western European absolutism. Even the Russian revolution of 1905 could not weaken this historico-political tradition. At best the revolution undermined its significance in some spheres of the Russian intelligenzia (numerically small). And, even in these spheres, it meant only the modification of the authority for which the Russian national spirit retains an immutable respect.

The present-day aspirations of the Russian Nation are hardly definite in their outlines. Nevertheless, it can already be clearly seen that they will follow the beaten path of the century-old tradition. The greatest possible expansion and strengthening of the Empire and the assimilation of all foreign peoples (including the Ukrainians too), will constitute the main substance of these aspirations. The Muscovite world has always been extremely intolerant of divergencies in faith, language and customs. This intolerance has always existed, and always will exist, even tho it may sometimes conceal itself behind a very cleverly adjusted mantle of commonplaces.

## Ukrainian Culture

When we speak of culture as a distinguishing mark of a specific nation, we mean, of course, not culture in the

widest sense of the word, but those well-known cultural peculiarities which characterise every European nation.

The Ukraine lies wholly within the confines of the greater European cultural community. But its distance from the great culture-centers of Western and Central Europe has, of course, not been without profound effect. The Ukraine is at a low stage of culture, and must be measured by Eastern European standards.

The Ukraine, which in the 11th Century caused great astonishment among travelers from Western Europe, because of its comparatively high culture, can now be counted only as one of the semi-cultural countries of Europe. The very low stage of material culture, to which the economic conditions of the country bear the best witness, is characteristic of the Ukraine in its entire extent. The intellectual culture of the people appears frightfully low. The number who know how to read are 172 out of a thousand in Volhynia, 155 in Podolia, 181 in Kiev, 259 in Kherson, 184 in Chernihiv, 169 in Poltava, 168 in Kharkiv, 215 in Katerinoslav, 279 in Tauria, and 168 in Kuban. These hopeless figures, to be sure, are only a result of the exclusive use of the Russian language, which is unintelligible to the Ukrainians, in all the schools. Even in the first school-year, it is not permitted to explain the most unintelligible words of the foreign language in Ukrainian. This frightfully low grade of education of the people permits of no progress in the economic life of the country. Even the most well-meaning efforts of the government or the Zemstvo, break on the brazen wall of illiteracy and ignorance of the Russian language. And Ukrainian books of instruction and information are forbidden as dangerous to the state. No wonder, then, that the Ukrainian farmer tills his field, raises his cattle, carries on his home industries, cures his ills, etc., just as his forefathers used to do. There is a small number of the educated who are still cultivating

literature and art, feebly enough for the size of the nation—but how could one speak of a distinct, independent culture here?

And yet it exists. For the low stage of culture which every foreign tourist, who only knows the railroads and cities, immediately notices, applies only to the culture created in the Ukraine by the ruling foreign peoples, together with the small mass of Ukrainian intelligenzia. (The intellectual culture of the Ukrainian educated classes will be discussed later). In the same way, every hasty observer would consider the Ukrainian peasant as a semi-European, standing on a very low level of culture. And yet this illiterate peasant possesses an individual popular culture, far exceeding the popular cultures of the Poles, Russians and White Russians. The settlements, buildings, costumes, the nourishment and mode of life of the Ukrainian peasant stand much higher than those of the Russian, White Russian and Polish peasant. Hence, the Ukrainian peasant easily and completely assimilates all peasant settlers in his own land. The rich ethnological life, the unwritten popular literature and popular music which, perhaps, have no counterpart in Europe, the highly developed popular art and standard of living, preserve the Ukrainian peasant from denationalization, even in his most distant colonies. The power of opposition to Russification is particularly great. The Ukrainian peasant never enters into mixed marriages with the Russian muzhik, and hardly ever lives in the same village with him. The ethnological culture of the Ukrainian people is, by all means, original and peculiar; entirely different from the popular cultures of all the neighboring peoples.

Even in prehistoric times, Ukrainian territory was the seat of a very high culture, the remains of which, now brought to light, astonish the investigator thru their loftiness and beauty. In ancient times the early Greek

cultural influences flourished in the Southern Ukraine, then the Roman, and in the Middle Ages the Byzantine. Byzantine culture had a great influence upon ancient Ukrainian culture, and its traces may still be seen in the popular costume and in ornamentation.

The most important element in Ukrainian culture, however, is entirely peculiar, and independent of these influences. The entire view of life of the common man, to this day, has its roots in the pre-Christian culture of the ancient Ukraine. The entire creative faculty of the spirit of the nation has its source there; all the customs and manners and very many of the songs and sayings. Christianity did not destroy the old view of life in the Ukraine, but was adapted to it. This accommodation was all the easier, because the character of the ancient faith and philosophy of life of the Ukrainian people were not so gloomy and cruel as was the case with many of the other peoples of Europe.

Outside of the prehistoric, Byzantine and Christian body of culture, we observe extremely few foreign influences in the popular culture of the Ukraine. It is highly independent and individualized. The Polish and Muscovite influences are very insignificant, and appear only here and there in the borderlands of the Ukraine.

It would require the giving of a detailed ethnological description of the Ukrainian people if we wished to draw a complete picture of its peculiar culture. Such a description has no place in geography, and certainly none in a book of such general nature as this. Therefore, I shall discuss but briefly the various phases of the popular culture of the Ukraine, so that in this respect, too, the independent position of the Ukrainians among the peoples of Eastern Europe may appear in the proper light.

The Ukrainian villages (with the exception of the mountain villages, which consist of a long irregular line of

farms) are always built picturesquely, in pretty places. The huts of a typical Ukrainian village are always surrounded by orchards, which is hardly ever the case among the Russians and White Russians, and very rarely so among the Poles. These neighbors of the Ukrainians plant orchards only in the few regions where professional fruit-growing has developed. In a Ukrainian village, the green of the orchards is considered absolutely necessary. The Russian will not endure trees in the neighborhood of his hut; they obstruct his view. In the Ukraine an orchard is an indispensable constituent part of even the poorest peasant homestead. And the separate farms, in which very much of the spirit of the glorious national past still lives, are hidden in the fresh green of fruit orchards and apiaries.

The Ukrainian house is built of wood only in the mountains and other wooded areas. In all other regions it is made of clay and covered with straw. The front windows are always built facing the south. In this way, different sides of the houses face the street, and in general, too, street life does not play so important a part in a Ukrainian village as it does in Polish, White Russian or Russian villages. The Ukrainian houses are always well fenced in, altho not so strongly and so high as the Russian houses in the forest zone, or as the White Russian houses. They usually stand (except in Western Podolia) rather far apart. Thus, the danger of fire is less than in the Russian villages of the Chornozyom region, where the huts lie very close together. As a result, the insurance companies, for instance, charge smaller premiums in the Governments of Kursk and Voroniz for insuring Ukrainian village properties than for Russian.

The general external appearance of the Ukrainian huts, which are always well whitewashed and have flower gardens before the windows, is very picturesque, and

contrasts to advantage with the dwellings of the neighboring races, especially the miserable and dirty Russian "*izbas.*" All the houses of the Ukrainians, excepting, of course, the poorest huts, are divided by a vestibule into two parts. The division into two we do not find in the typical huts of the Poles and White Russians. A further characteristic in which the Ukrainian house differs from the houses of the neighboring peoples, is its comparative cleanliness. Particularly does it differ in this respect from the Russian *izbas*, which are regularly full of various insects and parasites, where sheep and pigs, and, in winter, even the large cattle, live comfortably together with the human inhabitants. The well-known authority on the Russian village, Novikov, relates a very characteristic little story in this connection. Several Russian families settled in a Ukrainian village. Naturally, cattle were kept in the living room. And when the Ukrainian village elders expressly forbade the keeping of cattle in the huts, the Russians moved out, because they could not become accustomed to the Ukrainian orderliness. It happens very seldom that the Russians live together with the Ukrainians in one and the same village. In such a case, the Russian part of the village lies separate, on the other side of a ravine, a creek, or a rivulet. In the regions of mixed nationality we see, adjoining one another, purely Ukrainian and purely Russian villages.

The interior arrangement of the houses and the arrangement of the barnyard differentiate the Ukrainian very sharply from his neighbor. Still more decidedly does he show his individuality in his dress. The mode of dress is quite varied thruout the great area of the Ukraine, and yet we observe everywhere a distinctness of type and individuality as opposed to the dress of neighboring peoples. Only the dress of the Polissye people bears some trace of White Russian influence, on the western border of Polish influence, in Kuban of Caucasian influence (Russian influence

appears nowhere). But all these influences are slight. Ukrainian dress is always original and esthetic. No one can wonder, therefore, that the Ukrainian costume is surviving longer than the Polish, White Russian and Russian, and is giving way very slowly to the costume of the cities.

The description of even the main types of Ukrainian costume would take us too far afield; similarly, we cannot discuss the diet of the people in detail, altho in this respect, too, the Ukrainian race retains its definite individuality, those cases excepted, of course, in which economic strain forces the people to be satisfied with "international" potatoes and bread.

We now come to the intellectual culture of the Ukrainian people. If the material culture of the Ukrainians, despite its originality and independence is not at a strikingly higher level than that of the neighboring peoples, the intellectual culture of the Ukrainian people certainly far outstrips all the others.

The Ukrainian peasant is distinguished, above all, by his earnest and sedate appearance. Beside the lively Pole and the active Russian, the Ukrainian seems slow, even lazy. This characteristic, which is in part only superficial, comes from the general view of life of the Ukrainians. According to the view of the Ukrainian, life is not merely a terrible struggle for existence, opposing man to hard necessity at every turn; life, in itself, is the object of contemplation, life affords possibilities for pleasure and feeling, life is beautiful, and its esthetic aspect must, at all times and in all places, be highly respected. We find a similar view among the peoples of antiquity. In the present time, this view is very unpractical for nations with wide spheres of activity. At all events this characteristic of the Ukrainian people is the sign of an old, lofty, individual culture, and here, too, is the origin of the noted "aristo-

cratic democracy" of the Ukrainians. Other foundations of the individuality of the Ukrainian are the results of the gloomy historical past of the nation. It is the origin, first of all, of the generally melancholy individuality, taciturnity, suspicion, scepticism, and even a certain indifference to daily life. The ultimate foundations of the individualism of the Ukrainian are derived from his historico-political traditions; preference for extreme individualism, liberty, equality and popular government. Proceeding from these fundamentals, all the typical characteristics of the Ukrainians may be logically explained with ease.

The family relations reflect the peculiarity of the Ukrainian people very clearly. The comparatively high ancient culture, coupled with individualism and a love of liberty, does not permit the development of absolute power in the head of the family (as is the case among the Poles and Russians). Likewise the position of woman is much higher in the Ukrainian people than in the Polish or Russian. In innumerable cases the woman is the real head of the household. Far less often does this state of affairs occur among the Poles, and only by exception among the Russians. A daughter is never married off against her will among the Ukrainians; she has human rights in the matter. Among the Russians, this business is in the hands of the father, who takes the so-called *kladka* for his daughter, that is, he sells her to whomever he pleases. Grown sons among the Ukrainians, as soon as they are married, are presented by their fathers with a house and an independent farm. The dwelling under one roof of a composite family (a family clan), as is usual among the Russians, is almost impossible among the Ukrainians, and is of exceedingly rare occurrence. The father has no absolute power in this case (as among the Russians) to prevent discord in the family.

It is part of the peculiarity of the Ukrainians that they seldom form friendships, but these are all the more lasting, altho reserved and rarely intimate. The Russians make friends among one another very easily, but they separate very easily, too, and become violent enemies. The Poles form close friendships easily and are true friends, too. Enmity is terrible among the Russians; among the Poles and Ukrainians it is less bitter, and is, moreover, less lasting. The capacity for association is very considerable in the Ukrainians. All such association is based on complete equality in the division of labor and profit. A foreman is elected and his orders are obeyed, but he receives an equal share of the profits and works together with the rest. Among the Russians, the *bolshak* selects his workmen himself, does not work, and is simply an overseer. Still he receives the greatest part of the profits. Among the Poles the capacity for association is but slightly developed.

At this juncture we may also discuss the relation of the Ukrainians to their communities. The Ukrainian community (*hromada*) is a voluntary union of freemen for the sake of common safety and the general good. Beyond this purpose the Ukrainian *hromada* possesses no power, for it might limit the individual desires of some one of the *hromada* members. For this reason, for example, common ownership of land which has been introduced, following the Russian model, chiefly in the left half of the Ukraine, is an abomination in the eyes of the Ukrainian people, and is ruining them, economically, to a much greater extent than the division of the land in the case of individual ownership. The Russian "*mir*" is something entirely different. It is a miniature absolute state, altho it appears in the garb of a communistic republic. The *mir* is completely a part of the Russian national spirit, and the Russian muzhik obeys the will of the *mir* unquestioningly, altho its will enslaves his own.

The general relation to other people has become a matter of fixed form to the Ukrainians; a form developed in the course of centuries. The ancient culture and the individualistic cult have produced social forms among the Ukrainian peasantry which sometimes remind one of ancient court-forms. The proximity and influence of cities and other centers of "culture" have, to a great extent, spoiled this peasant ceremonial. But in certain large areas of the Ukraine it may still be observed in its full development. Great delicacy, courtesy and attention to others, coupled with unselfish hospitality, these are the general substance of the social forms of our peasants. These social forms are entirely different from the rough manners of the Polish or Muscovite peasants, which, in addition, have been spoiled by the demoralizing influence of the cities.

The relation of the Ukrainian people to religion is also original and entirely different from that of all the adjacent nations. To the Ukrainian, the essence of his faith, its ethical substance, is the important factor. This he feels deeply and respects in himself and others. Dogmas and rites are less significant in the Ukrainian's conception of religion. Hence, despite differences in faith, not the slightest disharmony exists between the great mass of the orthodox Ukrainians of Russia and the Bukowina, and the 4,000,000 Greek-Catholic Ukrainians of Galicia and Hungary. From the ancient culture and consideration of the individual comes, also, the great tolerance of the Ukrainians toward other religions, a tolerance which we do not find among the Poles and Russians. The spirit of the Ukrainians has, likewise, been very indifferent toward all sects and *roskols*. Among the Poles, sects flourished very luxuriantly in the 16th Century; among the Russians, there are to this day any number of sects, often very curious ones, and more are constantly arising. Among the Ukrainians, a single sect has been formed, the so-called

*stunda* (a sort of Baptist creed). This sect is not the result of rite formalism, however, but merely an effect of the Russification of the Ukrainian national church. In order to be able to pray to God in their mother-tongue, more than a million of the Ukrainian peasantry is persevering in this faith, which came over from adjacent German colonies, despite harsh persecution on the part of the Russian clergy and government.

The worth of Ukrainian culture appears, in its most beautiful and its highest form, in the unwritten literature of the people. The philosophical feeling of the Ukrainian people finds expression in thousands and thousands of pregnant proverbs and parables, the like of which we do not find even in the most advanced nations of Europe. They reflect the great soul of the Ukrainian people and its worldly wisdom. But the national genius of the Ukrainians has risen to the greatest height in their popular poetry. Neither the Russian nor the Polish popular poetry can bear comparison with the Ukrainian. Beginning with the historical epics (*dumy*) and the extremely ancient and yet living songs of worship, as for example, Christmas songs (*kolady*), New Years' songs (*shchedrivki*), spring songs (*vessilni*), harvest songs (*obzinkovi*), down to the little songs for particular occasions (*e. g. shumki, kozachki, kolomiyki*), we find in all the productions of Ukrainian popular epic and lyric poetry, a rich content and a great perfection of form. In all of it the sympathy for nature, spiritualization of nature, and a lively comprehension of her moods, is superb; in all of it we find a fantastic but warm dreaminess; in all of it we find the glorification of the loftiest and purest feelings of the human soul. A glowing love of country reveals itself to us everywhere, but particularly in innumerable Cossack songs, a heartrending longing for a glorious past, a glorification, altho not without criticism, of their heroes. In their love-songs we find not a trace of sexuality; not the

physical, but the spiritual beauty of woman is glorified above all. Even in jesting songs, and further, even in ribald songs, there is a great deal of anacreontic grace. And, at the same time, what beauty of diction, what wonderful agreement of content and form! No one would believe that this neglected, and for so many centuries, suppressed and tormented people could scatter so many pearls of true poetic inspiration thru its unhappy land.

This peculiarity of the poetical creative spirit enables us, just as do the other elements of culture, to recognize the vast difference between the Ukrainian and the Russian people. The Russian folk songs are smaller in number and variety, form and content. Sympathetic appreciation of nature is scant. The imagination either rises to supernatural heights or sinks to mere trifling. Criminal monstrosities and the spirit of destruction are glorified as objects of national worship. The conception of love is sensual, the jesting and ribald songs disgusting.

Like their popular poetry, the popular music of the Ukrainians far surpasses the popular music of the neighboring peoples, and differs from them very noticeably. Polish popular music is just as poor as Polish popular poetry, and almost thruout possesses a cheerful major character. Russian popular music has many minor elements in addition to the major elements. But the Russian popular melodies are quite different from the Ukrainian. They are either boisterously joyous or hopelessly sad. The differences in the character of the melodies are so great that one need not be a specialist to be able to tell at once whether a melody is Ukrainian or Russian.

Popular art, in our people, is entirely original and much more highly advanced than in the neighboring peoples. The remains of the ancient popular painting are still in existence in the left half of the Ukraine. Wood carving has developed to a highly artistic form among the Hutzuls

(there are the well-known peasant-artists ***Shkriblak***, ***Mehedinyuk***, and others). The chief field of Ukrainian popular art, however, is decoration. Two fundamental types are used; a geometric pattern with the crossing of straight and broken lines, and a natural pattern, which is modelled after parts of plants (as leaves, flowers, etc.). In the embroideries, cloths and glass bead-work, we find such an esthetic play of colors, that even tho each individual color is glaring, the whole has a very picturesque and harmonious effect. The decorative art of the Russians is much lower. It is based on animal motifs or entire objects, *e. g.*, whole plants, houses, etc., and evinces an outspoken preference for glaring colors, which are so combined, however, as to shock the eye. Among the Poles, the art of ornamentation is very slightly developed. As for colors, they prefer the gaudy, not many at a time; usually, blue is combined with bright red.

For the sake of completeness, we must still say something about Ukrainian manners and customs. In this aspect, too, the Ukrainian peasantry is richer than its neighbors. Only the White Russians are not far behind them. The entire life of a Ukrainian peasant, in itself full of need and poverty, is, nevertheless, full of poetic and deeply significant usages and customs, from the cradle to the grave. Birth, christening, marriage, death, all are combined with various symbolic usages, particularly the wedding, so rich in ceremonies and songs, so different in its entire substance from the Russian or Polish. The entire year of the Ukrainian constitutes one great cycle of holidays, with which a host of ceremonies are connected, most of which have come down from pre-Christian times. We find similar ceremonies among the White Russians, some also among the Poles, *e .g.*, Christmas songs, songs of the seasons, but among the Russians, on the other hand, we find no parallel to the Ukrainian conditions. Among the Russians,

neither the Christmas songs (*kolady*) are customary, nor the ceremonies of Christmas eve (*bohata kutya*), neither the midwinter festival (*shchedri vechir*), with its songs (*shchedrivki*), nor the spring holidays (*yur russalchin velikden*) and spring songs (*vesnianki*), nor the feast of the solstice (*kupalo*), nor the autumn ceremonies on the feast-days of St. Andrew or St. Katherine, etc. The entire essence of the popular metaphysics of the Ukrainians is quite foreign to the Russians, and almost entirely so to the Poles. Only the White Russians form a certain analogy, but, among them, pure superstition outweighs customs and ceremonies in importance.

Sufficient facts have been given to make clear to the reader the complete originality and independence of Ukrainian popular culture. We now come to a brief survey of the cultural efforts of the educated Ukrainians.

The number of educated Ukrainians is comparatively small. Hardly a century has passed since the intelligence of the nation awoke to new life, yet, in its hands lies the development of the national culture in the widest sense of the word. The disproportion between the magnitude of the task and the small number of the workers for culture, is at once apparent. And yet the results of the work, in spite of obstacles on every side, have grown in volume.

The Ukraine lies within the sphere of influence of European culture. This culture has spread from Central and Western Europe over the territory of the Ukraine and its neighboring peoples, the Poles, Russians, White Russians, Magyars and Roumanians. Each one of these nations has accepted the material culture of Western Europe to a greater or less degree, and adjusted the spiritual culture to its national peculiarities. The Ukrainians, for a long time after the loss of their first state and the decline of their ancient culture, found no line along which they could develop their national culture independently. For

centuries they vacillated between the cultures of Poland and Russia. To this day, now that the conditions are much better, one may still find among the Ukrainians individuals who, culturally, are Poles or Russians, and only speak and feel as Ukrainians. Such a condition is very sad, and causes the Ukraine untold injury—most of all in the field of material culture, which, in both these neighboring nations, is very incomplete. Agriculture, mining, trade and commerce, are on a much lower plane among the Poles than in Western Europe. And what is to be said of the Russians, who are a mere parody of a cultured nation in almost every field, altho they possess so great a political organization? No one need be surprised that material culture is of so low a grade in the Ukraine. On the other hand, it has become clear to every intelligent Ukrainian, that the development of material culture is possible only thru Western European influence, by sending Ukrainian engineers, manufacturing specialists, merchants and farmers, to Western and Central Europe to learn their business.

In the field of Ukrainian mental culture, the chief influences to be considered are Polish and Russian. In this field, Polish culture is comparatively very high. It possesses a very rich literature, considerable science and art, and very definite principles of life. The influence of Polish culture is limited almost exclusively to Galicia at the present time. But it was very strong until very recent years, when it began to decrease. At one time, however, the entire Ukraine, particularly the right half, was emphatically under the influence of Polish culture for centuries (16th to the 18th Century).

There is one element in the spiritual culture of the Poles which certainly deserves to be, and is, imitated by the Ukrainians. It is the tone of national patriotism, the love for the nation, its present and its past, which is everywhere

evident. Hence, modern Polish literature must be a model for Ukrainian literature in its tendencies and its sentiments. But, beyond its patriotic tone, Polish culture is not appropriate for the Ukrainian people. It is aristocratic, by reason of its descent and its philosophy of the universe. It is far removed from the mass of the people it should represent. In spite of all efforts, the Polish culture of the educated classes has been unable to establish an organic connection with the common people of Poland. It has been built up above the masses and has not grown out of them. To build up Ukrainian culture entirely after the model of Polish culture, would mean to tear it from its life-giving roots in the soul of the people. That it would be deadly to Ukrainian culture, the Ukrainians have perceived for a long time.

Russian culture is much more dangerous to the Ukrainian people than Polish. In its material aspect it is of a very low grade. In the spiritual field it possesses a very rich literature and a noteworthy science and art. The spiritual culture of Russia now dominates all of the Russian Ukraine, and has, to a great extent, become prevalent even among those educated Ukrainians in Russia who possess real national consciousness.

This very circumstance constitutes a great danger for the development of Ukrainian culture. For, let the Muscovite conquest extend over the Ukrainians, even in the cultural field, and there is an end of all the independence of the Ukrainian element, and its beautiful language will be, in fact, degraded to a peasant dialect. But a still greater danger lies in the quality of the Russian cultural influence. The first evil characteristic of Russian culture is the complete lack of national and patriotic sentiment, which is absolutely necessary for an aspiring culture like the Ukrainian. Russian culture is infecting the Ukrainians with an ominous national indifference. Another unfavor-

able characteristic of all Russian culture, is the fact that it is undemocratic thru and thru, and very far removed from the Russian people. The Russian people did not create this culture; the educated, in producing it, took nothing from the people. An intelligent man, brought up in the atmosphere of Russian culture, is unspeakably distant from the Russian people, so that it is impossible for him to work at the task of enlightening them. The views of the Russian "lovers of the people" (*narodniki*), or of a Tolstoy, concerning the common people and its soul, simply offend us thru their unexampled ignorance of the peculiarities and customs of the common people.

A culture so far removed from the people as the Russian can bring no benefit to the Ukrainians. We observe this, best of all, in the condition of the muzhik, to whom the educated Russian has never been able to find an approach, and now the latter looks on indifferently, while the masses sink deeper and deeper down into the abyss of intellectual and spiritual darkness. To guide the common people along the path of organic social-political and economic progress, is a task which an intellect permeated with Russian culture can never perform. The last Russian revolution, and the beginning of the era of constitutional government for Russia, have furnished the best proof for the truth of this assertion.

The other chief characteristic of Russian culture is its manifest superficiality. Hidden beneath a thin veneer of Western European amenities lies coarse barbarism. The external manners of the educated Russian very often strike one by the coarseness, lack of restraint and brutal recklessness accompanying them. We see, then, that even the external forms of European culture have only been outwardly assumed by the Russians. Still poorer is their condition with respect to the things of the spirit. We have observed to what a slight degree the Russians have

been able to assimilate the material culture of Europe. The same holds for spiritual culture. Russian literature, particularly the latest, has brought ethical elements of the most questionable worth into the world's literature. (Artzibashev and others). Russian science, altho it can point to some great names and has unlimited means at its disposal, stands far behind German, English or French science. In Russian science, everything is done for the sake of effect, without thoroness, without method, hence fatal gaps appear. Let us consider, for example, our science of geography. Hardly a year passes in which the Russian government does not send one or more great scientific expeditions to Asia or to the North Pole. Each expedition hands in volumes of scientific results, and, at the same time, the surface configuration of the most populous and culturally most advanced regions of European Russia, for example, is barely known in its main aspects. The best geography of Russia was written by the Frenchman Reclus. A modern, really scientific geography of Russia does not exist.

Even more emphatically does the superficiality of Russian culture appear in social and political questions. These two directions of human thought have, in most recent times, become very popular in all Russian society. But what an abyss separates a European from a Russian in this field! In Europe the theses of the social sciences or of politics are the result of life. They are adjusted to life conditions and treated critically. In Russia they are lifeless dogmas, about which Russian scholars of the 20th Century dispute with the same heat and in the same manner as their ancestors, a few hundred years ago, disputed as to whether the Hallelujah should be sung twice or three times, whether the confession of faith should read "born, not created" or "born and not created," whether one should say, "God have mercy upon us" or "Oh God, have mercy upon us," whether one should use two fingers in crossing

oneself or three, and so on. Naturally, at that time religious questions were the fashion. Today it is social questions. And what does it amount to? Rampant doctrinism, the eternal use of banal commonplaces, an immature setting up of principles. And the result is—extreme unwieldiness of Russian society in internal politics and in parliamentarism, in social and national work, together with a deep scorn of the depraved West (*gnili zapad*).

With this superficiality of Russian culture, its most evil characteristic is connected; the decline of family life and a certain moral perverseness. This phenomenon is commonly met with in all peoples who have but recently come in contact with Western European culture. The bad qualities of a high civilization are always assumed first, the good qualities slowly. In this field the Russians have far outstripped their European models.

The above facts suffice to prove that Russian cultural influences are dangerous for the Ukrainian people. The severe, rigid materialistic character of the Russian people will, without any doubt, enable it to outlast the storm and stress period of the present Russian culture, and guide it to a splendid future. But for the Ukrainian people, with its sentimental, gentle character, the assuming of Russian culture would be a deadly poison. Even supposing that the Ukrainian people might survive such an experiment, a thing which is not likely, it would forever remain a miserable appendage of the Russian nation.

And besides, such an experiment is entirely unnecessary. Either we say, "We are Ukrainians, an independent race and different from the Russians," and build up our culture quite independently, or we say, "We are 'Little Russians,' one of the three tribes of Great Russia and of its high culture," and, in that case, we may calmly lie down on the world renowned Ukrainian stove. For then it does

not pay even to work at the development of our language. A third alternative does not exist.

At present, however, the former view is generally predominant among the intelligenzia of the land, and the fact that many intelligent Ukrainians are permeated with Russian culture is due, not to an ideal conviction, but only to the powerful influence of the Russian schools and the Russian cities. How do these educated people stand beneath the Ukrainian peasant who, even on the shores of the Pacific Ocean, does not exchange his individual Ukrainian popular culture for the Russian, and deserves the scornful, but in our eyes very commendable saying of the Russians, "Khakhol vyesdie kharkhol!"

If, then, we are to remain a really independent nation, there is only one avenue open to Ukrainian culture, and that is to follow the culture of Western Europe step by step, to seek its models among the Germans, Scandinavians, English and French. And this entire development we must base upon the broad foundation of our high popular culture. Let us consider with what piety the really cultural nations of Europe preserve the little remains of their popular culture. Their few usages or superstitions, their little body of folk-songs! How much richer than they are we in all our misery! The Ukrainian people spoke a mighty first word thru Kotlarevsky a century ago; it then found the first diamond upon its path, the pure language of the people. Unfortunately, no Ukrainian has yet arisen who could speak just as mighty a second word by finding ways and means of lifting the treasures of the home culture of the land, and enabling the entire nation to work at the task of using them to advantage. This "apostle of truth and science," as he is called by Shevchenko, has not appeared, altho he has had several ancestors, like Drahomaniv. But there are already very many Ukrainians who would place their seal upon the declaration: "that the

Ukraine possesses so rich a popular culture, that by developing all its hidden possibilities and supplementing them by elements drawn from the untainted sources of Western European culture, the Ukrainian nation could attain a complete culture just as peculiar to itself, and just as exalted among the great European cultures, as Ukrainian popular culture is among the popular cultures of other peoples."

Hence, the way lay clearly indicated for the Ukrainians of the 19th and 20th Century. Ethnological investigations and the scientific study of folk-lore have been taken up very eagerly by Ukrainian scholars, so that in this particular field, recent Ukrainian science, perhaps, ranks highest in all Slavic science. In no other cultured nation of Europe is the life of the educated elements so permeated with the influences of the nation's own popular culture. The Ukrainian cultural movement is hardly a century old, and yet it has results to show which, even today, guarantee the cultural independence of the Ukrainian nation. Active relations with Central and Western European cultures have been established, which may become of incalculable effect in the further development of Ukrainian culture.

## Relations Between the Soil and the People of Ukraine

The *geographical situation* of the Ukraine is the same today as it was a thousand years ago. If the theories which call the present Ukrainian territory the original home of the Aryans are true, the Ukrainians must be considered the primeval autochthones. The limits of the Ukrainian nation, too, are almost the same today as they were a thousand years ago, altho, in the meantime, great shifts have taken place. Only in the west, the Ukrainians have lost a strip about 30 kilometers wide to the Poles, thru the Polonization movement, which has been advancing eastward since 1340. In this section the Ukrainian element has survived only in the mountains. The northern border, next to the White Russians, which, since primitive times, has consisted of great forests and swamps, has always remained without changes of any kind. On the other hand, the part of the northern border east of the Dnieper, and still more the eastern and southern borders, have been subject to radical changes in the course of Ukrainian history.

The old Ukrainian state of Kiev rapidly developed a far-flung expansive movement, and soon covered almost all of Eastern Europe. In the south, the old Kingdom of Kiev, and together with it the southern tribes of East Slavs (the ancestors of the present Ukrainians) reached the delta of the Danube and the Black Sea and the foothills of the Caucasus, where, in the present Kuban district, the old

province and petty principality of Tmutorokan was situated. How far to the north the southern East Slavic tribes then extended we can not tell exactly. But it is very improbable that they extended beyond the woods and swamps of the Polissye.

Even at that time, a thousand years ago, the geographical position of the Ukraine, on the edge of Europe and the steppe-country of Central Asia, proved itself dangerous. From the beginning of the Middle Ages on, innumerable tribes of Turkish-Tatar origin, came crowding out of the Central Asiatic steppes westward, thru the steppes of Southern Ukraine. The Ukraine had to be the first of all the countries of Europe to withstand the attack of these hordes. The first Ukrainian conqueror, Sviatoslav, who destroyed the state of the Khazars and Bulgars and defeated other weak hordes, was killed in the struggle with the Pechenegs. Volodimir the Great was forced to fight these nomads under the very walls of his capital. These wars with nomad tribes, which began before the Ukraine appeared in the arena of history, lasted from this time until the end of the 18th Century, with varying fortunes. At times the balance of power was on the side of the Ukraine, and then Ukrainian colonization advanced victoriously to the south and east as far as the Black Sea. At other times the nomads were victorious, and the eastern and southern boundaries of the Ukraine receded north and west. The great chains of fortifications and border walls erected by the Great Princes of Kiev, on the southeast borders of the Ukraine, were of no avail. At the time of the greatest extent of the Tatar attacks (15th to 16th Century) almost all the left half of the Ukraine was a wilderness, and in the right half Kiev was a border fortress. All the southern Dnieper country, the Boh country and Eastern Podolia, was at that time a sparsely-peopled borderland, and constantly exposed to the dangers of Tatar attacks. At that time

Ukrainian territory was confined to the Polissye, the northern part of Chernihiv, Volhynia, Western Podolia, Eastern Galicia and Podlakhia, and only small, very thinly populated border strips of the adjacent regions. These fluctuations in the boundaries of the Ukraine have no parallel in the history of Europe, and show most clearly in what difficult straits the Ukrainian nation was forced to live for centuries.

The proximity of nomadic Asia for a time greatly weakened the influences of the proximity of another neighbor—the Black Sea. The Black Sea was, for the Ukraine, the means of intercourse with Byzantium, the greatest cultural center of Europe in the Middle Ages. The Ukraine, because of its waterways, was nearest to Byzantium of all the European countries. This comparatively short period in which the Ukraine was able to maintain intercourse with Byzantium, without obstacles, brought the Ukraine splendid cultural advantages. In a wide stream the Byzantine material and spiritual culture flowed into the Ukraine, so that the country from the 11th to the 13th Century stood highest, culturally, among all the Slavic states and amost equalled the Western European states. In some respects the Ukraine of those days was even superior to Western Europe. In those days Kiev or Halich surpassed London or Paris in wealth and commercial importance.

The relations with the sea and with Byzantium kept growing ever more difficult for the Ukraine to maintain, however, as a result of the ever growing pressure of the nomad hordes. Finally, in the 13th Century, came the Tatar invasions. These have best demonstrated the significance of the geographical situation of the Ukraine. The ancient Ukrainian state had to be the first to withstand the Mongol attack. After the defeat, the Ukraine was the first of all the countries of Europe to be desolated by fire

and sword. It is true that the strong resistance of the Ukraine effectively stopped the Tatar pressure, and Europe has this circumstance to thank for its escape from the fate of Asia in the 13th Century, three-fourths of which was conquered by the Mongols of Djingis Khan. The Ukrainian state fought a whole century longer with the Tatars, but could not hold their own after that. The Ukraine was systematically devastated by the Tatars, and in the struggle with them the entire military power of the Ukraine was spent. At the same time the neighbors on the north and west —the Poles and Lithuanians—were able to develop freely behind the protecting back of the Ukraine, and to increase their powers. Finally the Poles annexed Eastern Galicia, and the rest of the Ukrainians faced the choice of either joining themselves to the Lithuanians, whose upper classes were at that time, culturally, entirely Ukrainian, or to place themselves beneath the Muscovite yoke. They chose the first. In 1569 the Lublin Union joined the Ukraine to Poland. All these things are the unhappy results of the geographical situation of the land on the threshold of Europe and Asia.

A long time following the loss of Ukrainian political independence, the sad results of the geographical situation of the country continued. The constant attacks of Tatars and Turks, the millions of Ukrainian slaves in the slave-markets of the Orient, had to continue for many centuries to be the source of the oriental world, which was fast hurrying toward its fall. But soon the geographical situation of the Ukraine began to work positively too. The geographical situation, together with other natural factors, became one of the main causes for the formation of the Ukrainian Cossack organization. This is not the place to discuss at length the significance of the Cossack organization for the Ukraine; we are only emphasizing the fact that the Cossack organization alone has preserved the Ukraine from complete downfall.

The Cossack organization, as a product of geographical situation, has a parallel only in the familiar North American backwoodsmen, prairie hunters and pioneers who constituted the advance guard of European civilization on their continent. Yet this analogy is a very weak and incomplete one. The Zaporog Cossacks can in no way be compared either with the Volga, Don or Ural Cossacks, who were chiefly brigands, or with the Austro-Hungarian border-soldiers, who were a state organization. The Ukrainian Cossack organization represented the efforts for liberty and independence of the entire Ukrainian people, and, finally, led up to the revival of Ukrainian political life in the form of an independent hetman state. To be sure, the territory of this hetman state embraced barely one-half of the Ukraine, but it constituted a region about which a *Piedmont* of independence for the entire Ukraine might grow up.

Since the last decades of the 18th Century, the geographical situation of the Ukraine on the threshold of two continents has been growing from an unfavorable position to one that may be described as very favorable.

It was for the most part with Ukrainian forces that Russia finally destroyed the nomads of the Ukrainian steppes. This fact has been of great significance for the Ukraine. Since that time the vast, tho almost imperceptible, colonization movement of the Ukrainian people to the east, southeast and south, has been in progress. This movement extended the Ukrainian boundaries twice within a single century. For the second time, and in a peaceful way, the Ukraine reached the delta of the Danube, the Black Sea, the Caucasus and the Caspian Sea. All this is only an outcome of its geographical situation. In another situation the Ukrainians could not so easily dispose of unsettled lands. This expansion of the Ukrainian people has by no means reached its maximum, but it has surely passed its climax. To be sure, the migration of the Ukrain-

ian element to the east and south is still very large, but there are no longer so many uninhabited districts open to settlement as in former times, and the emigration in masses has had to stop.

Nevertheless, the geographical situation opens a very fine prospect for later Ukrainian colonial expansion. Ciscaucasia and many regions on the lower Volga and Ural are, culturally considered, really a *bonum nullius*. Russian colonization is directed to other regions, chiefly for climatic reasons, and other competing races need hardly be considered because of their smallness. Even at present the Ukrainians constitute a very noteworthy minority; in the sub-Caucasian country most probably an absolute majority. In the course of a few decades of rather unsystematic colonization, extensive regions of the sub-Caucasian country, with their wealth of natural resources, will become Ukrainian; the entire Kuban region already is part of the compact national territory of the Ukrainians, and the Ukrainian language has become an international language for the small mountain races of the Western Caucasus.

The geographical situation of the Ukraine on the threshold of Asia is distinctly favorable to the immigration of Ukrainians into Central Asia and Southern Siberia. In a strip of thousands of kilometers, chains of Ukrainian settlements extend along the southern border of Siberia to the Japan Sea. Along this immeasurable strip the number of Ukrainian settlements is continually growing. This colonization, which leads tens of thousands of Ukrainian peasant-settlers to the far east every year, has attracted the attention of wider circles only within the last two decades. In reality it is much older, for as early as the seventies of the past century, German explorers found Ukrainian colonies at the northern base of the Altai and on the Chinese border, etc. The establishment of these old and new colonies of the Ukrainians in Asia is proceeding in all quietude, and is

quite analogous to that splendid colonization movement of the Ukrainians at the begining of the 19th Century, which, at one time, quite imperceptibly doubled the national territory of the Ukrainians.

Yet the colonial expansion of the last century brought the Ukrainian nation many disadvantages along with the advantages. For more than a century it drained the entire energy of the nation and deprived it of tens of thousands of the most active and energetic individuals every year. All the strength of the nation was turned to the one task of settling new lands and cultivating them according to ancient usage. From this cause, the political idea and the cultural efforts of the Ukrainians have suffered very keenly.

After the Ukrainian territory had again reached the Black Sea, as a result of colonial expansion, the Black Sea regained its ancient significance to the Ukrainians. Of course, there is no longer any such cultural center on the Pontus as Byzantium once was, and Turkish domination has deprived the formerly highly cultured districts on the shores of the Black Sea of all their ancient civilization. But the sea has retained its capacity for promoting culture, and, after many centuries, once more gave the Ukrainians direct connection with the wide world. To be sure, the Black Sea is closed by nature and by international treaties, and the Russian Government, intentionally or unintentionally, has never particularly encouraged the development of Pontian navigation; and, to be sure, the Black Sea lies far distant from the main commercial thorofares of the world. But all these disadvantages of the Black Sea may lose much of their weight in a short time. The materialization of the splendid project to connect the Baltic and the Black Sea by means of a canal, including the Dvina and the Dnieper, navigable by large vessels, can not be far off. After the carrying out of this project the isolation of the Black Sea will be lessened, and an important channel of

sea-navigation will run across the entire Ukraine. Pontian navigation must sooner or later experience a great advance, for it is a natural necessity for the productive hinterland and for the entire Ukrainian shore people, who have always exhibited considerable skill as seamen. The Ukrainians already constitute more than two-thirds of the crews of all Russian trade and warships on the Black Sea. With the strengthening of the constitutional regime in Russia, the obstacles which have been placed in the way of Pontian navigation by the Russian government in favor of Baltic navigation must disappear of themselves.

Finally, the great commercial thorofares of the world are beginning to move nearer to Ukrainian territory as the cultural development of the Orient advances. As the European influences in the Iran, in Syria and Mesopotamia begin to grow, new projects for an overland connection of Europe with India continually arise. At present the Bagdad Railroad is the center of interest, and soon the Persian railroad projects will claim attention. But the shortest and easiest overland route from Europe to India must cross the length of the Ukraine, touching Kiev and Kharkiv, going past the deltas of the Volga and Ural and the Aral Sea, along the Amu, and thru Afghanistan and the Punjab. When this route is once established the Ukraine will attain a great commercial significance as the right of way of one of the world's most important commercial highways. Then, only, will the importance of the Dnieper and Don, the Black Sea, the Sea of Azof and the Caspian Sea, as bearers of the main commercial road, be indeed realized.

Everyone can readily understand that in this case the political significance of the Ukraine would also be very great. Even now this land is an invaluable possession to Russia. Only the possession of the Ukraine makes possible for Russia access to the Black Sea and permits her to gravitate toward the straits, to win influence on the Balkan

peninsula, to threaten Turkey and the Mediterranean, to dominate the Caucasus country, to oppress Persia and seek the nearest way to the Indian Ocean. And when once the overland route to India goes thru Ukrainian territory, the Ukraine will command over a thousand kilometers of this important road and begin to be a prime factor in world politics. The possession of the Ukraine will then be the costliest treasure and a life-problem to the state which will dominate this territory. Or, if the Ukraine, in all its ethnographic extent, should win its political independence, it may in time become one of the largest and most powerful states of Europe.

Another element of the geographical situation of the Ukraine, which should not be underestimated, is the fact that the Ukraine is so remote from all the cultural centers of Europe. We indicated briefly, above, of what great importance was the short, direct connection of the Ukraine with the Byzantine cultural center. Only during this short period did the historical fate of the Ukraine permit the land to have direct relations with an important culture center. The wall of barbarian nomad attack separated the Ukraine very quickly from this culture center, and when it died the Ukraine suddenly fell into a situation in which it was far removed from all the cultural centers of Europe. Only Poland allowed a few elements of Western European culture to sift thru into the Ukraine. But the lack of Polish political and social organization did not allow Western European culture to take firm root in Poland. The Ukraine could, therefore, receive only a little of the Western European wealth of culture thru this channel. Until well into the 18th Century, Russia stood upon a much lower grade of culture than the Ukraine. And altho Russia very soon reached and surpassed her rival, the Ukraine has, to this day, received nothing worth while from Russia. The Ukraine even suffered great loss, culturally, from its union

with Russia. The White Russians, the Roumanians, the Slovaks, the Magyars, were never so far advanced, culturally, as to be able to teach the Ukrainians anything. The centers of Western and Central European culture—Germany, Scandinavia, France and England—are so far distant from the Ukraine that they can exert only slight and indirect influence upon its cultural progress. The low state of culture of the Ukraine, consequently, springs chiefly from its geographical situation:

The second geographical element, *surface formation*, has had as strong an influence upon the Ukrainian people as the geographical situation. The chief factor in the surface configuration of the Ukraine is the great preponderance of plains and plateaus. These take up nine-tenths of the area of the Ukraine. The difference in level of the ground is from 200 to 300 meters. Such slight variations in height are of great significance as far as anthropogeographical conditions are concerned. The most important characteristic of level countries such as this, is the complete lack of such obstacles as might make good natural boundaries. And the lack of good natural boundaries is very strongly felt in the history of all lowland peoples.

This lack the Ukrainians have always felt very deeply. With the exception of the Black Sea, which was once the boundary of the ancient Ukrainian Kingdom of Kiev and now forms the southern boundary of the Ukraine, and, with the exception, also, of the forest swamps of the Polissye, the Ukraine never possessed, and does not now possess, any good natural boundaries. Neither the Carpathians nor the Caucasus have provided the Ukraine with a distinct natural boundary line. The borders and borderlands of the Ukraine lie open, were always easily accessible to all conquerors, and made the defense of their political independence much harder for the Ukrainians than it has been for any other nation of Europe. To be sure, the

lack of obstacles on the borders made it very easy for the Ukrainian Kingdom to extend its limits, as the rapid and appreciable growth of the ancient Kingdom of Kiev best proves. But later, unfortunately, this favorable surface formation was taken advantage of with much greater gain by the Tatars, Lithuanians, Poles and Russians, to the ruin of the Ukraine. The facility of military campaigns and of territorial conquests, two favorable foundations for the development of great land-conquering nations, and at the same time typical authropogeographical characteristics of low countries, have played an active part in the history of the Ukraine. The pressure of various races, which is a characteristic of plain countries, is another condition the Ukraine had to face. From the Cimmerians to the Turks, how many races have inhabited the steppes of the Ukraine!

In the present times of highly developed intercourse, natural obstacles are losing much of their value, and, for the same reason, the disadvantages of low countries are becoming less serious. It is true that the Ukraine is hard to defend strategically, and an enemy wishing to attack Russia in the Ukraine would place her in a very precarious position. But the lack of pronounced natural lines of defense is also peculiar to the eastern border of Germany, for example, or the northern border of France. Apart from these strategic elements, the Ukrainian plain country and plateau country has nothing but advantages. The migration of the Ukrainian people has always been very easy, and the growth of Ukrainian territory has been unhindered because of the openness of the borders.

The lowland character of the Ukraine is important not merely in respect to borders. The lack of obstacles within the country in the way of highlands always favored easy travel in all directions. The building of the roads met with no obstacles, and was able to proceed in straight lines.

In the present days of high-roads and railways, this is a very important characteristic of the land. Unfortunately it has never been taken advantage of. The railroads of the Ukraine tend toward unknown Russian centers, without consideration of the natural centers of the country. Hence its insufficient importance for traffic.

Another characteristic of all plain countries, and therefore of the Ukraine, is great homogeneity. It produces a great uniformity of living conditions, and gives the Ukraine great unity of language, customs and standard of living. The types of buildings, national costume, etc., so varied in the small area of Germany, extend over hundreds of thousands of square miles in the Ukraine, with only minor changes. The uniform lowland character of the Ukraine favored, to a certain degree, the constant preservation of the old customs and the gradual development of culture. The lack of natural differences within the country has brought with it the lack of differences among the inhabitants, and it is well known that such differences enrich the ability and the character of the entire nation considerably. Hence, the lack of those necessary conditions of development and progress has always had a profound influence in the Ukraine, while we meet such favorable conditions at every step in the small areas of Central Europe, with their smaller supply of natural wealth. Melancholy and indifference, these typical marks of the lowland peoples, have always been characteristic of the Ukrainians also. And these types are not favorable to the development of culture. Only the present time of easy communications are capable of weakening the bad influence of the uniformity of surface of the Ukraine to any marked degree.

Yet, not all the typical characteristics of a lowland country are common to the Ukrainians. Above all, they lack, and always have lacked, the capacity for the development of great political strength, the capacity for centraliza-

tion; in a word, the capacity for state organizing. This characteristic of the lowland peoples, which is very strongly developed among the Russians, more weakly in the Poles, has always been very poorly bred in the Ukrainians. The Ukrainians have possessed the tendency, peculiar to all lowland peoples, to level its aspirations, to divert them to one side, but never to the subordination of their individuality to the interests of the state. Only when the general equality of all citizens of the state opens to every man an equal field for the activity of his personal ego, have the Ukrainians been able to do the state-idea justice and to embody it very finely. They have given the best proof of this in the Zaporog Cossack organization. This fact gives us the only hope that the Ukrainians may yet become an organized nation in modern times. The present manner of national life is what the Ukrainians wished to have centuries ago—much too early, of course.

In view of the great uniformity, every rise of land is significant. Slight elevations, chains of hills, river valleys, even swamps and forests appear in the Ukraine as important boundaries, lines of defence, foundations for cities and castles, fortified places, lookout stations, etc. Even the many barrows (*mohili*, *kurhani*) have played an important part in the history of the Ukraine.

The anthropogeographical significance of the Ukrainian mountains is in general slight, altho we find all the typical influences of the mountains in the mountain tribes of the Ukrainians. Great physical endurance, coupled with a feeling for liberty and independence, great personal courage, great love of country, etc., have always distinguished the Ukrainian mountain dwellers.

The Ukrainian Carpathians are, to this day, one of the most thinly settled regions of the Ukraine, chiefly for the reason that it was always a passive region, which was not considered in political life. Great historical movements

hardly ever touched the Carpathians. For many centuries they remained almost devoid of human life. Hence, the Carpathians played hardly any part as a border defence of the Ukrainian state organizations. Mountain chains usually are of very great importance as a defence for individual tribes or entire races. The Carpathians, with their great ease of passage, especially in the Ukrainian part, have been of no significance in this respect. They did provide effective protection for the Walachian shepherds thru many centuries. These shepherds led a nomad life with their flocks on the Carpathian pastures, and left proof of their presence in numerous names of mountains, rivers and villages. The Carpathians also provided shelter for the numerous Ukrainian fugitives who fled from oppressive serfdom and formed bands of half-political freebooters, friends of the lowly, and warriors against the lords (*oprishki*). The brigandage peculiar to all mountain regions flourished also in the Carpathians. But no state originated in the Carpathians. The Alps were the foundation of Switzerland, and played a part in the formation of the Austrian state. The Carpathians have given the Ukraine nothing, apart from occasional passing shelter.

At this point we must emphasize another anthropogeographical characteristic of the mountains. It is the general poverty of their inhabitants and their consequent desire, under compulsion, to seek expansion. The inhabitants of the Ukrainian Carpathians, about the middle of the 19th Century, were in a serious economic condition because of the small amount of productive ground. Need came first to the Lemkos, then to the Boikes, and last to the Hutzuls. Above all, it partly divested the mountain population of the then predominating industry of cattle raising. The Lemkos at first carried on a lively trade in wagon grease thruout the southern part of Eastern Europe, then they turned to harvest work, in the surrounding

lowlands, and last to the annual emigration to America. The Boikes first carried on trade in salt, then changed to the fruit trade, which they are carrying on today, down as far as Warsaw and Moscow. Very lately, the annual emigration to America has been depleting their ranks also. The Hutzuls have but just begun to resort to emigration. They hire out less frequently for agricultural work than for the lumber industry, in which they are very skilful. Their highly developed domestic industry, which borders on the artistic, might provide them with rich support, but it is rather hindered than advanced by the determining factors of the land.

In presenting the general influence of the ground formation on the people, we must also consider the anthropogeographical significance of the *geological conditions* of the country. They should not be underestimated, as one might expect, while to overestimate them, as some scholars have done, by even referring anthropological characteristics back to the geological composition of the country, is quite as bad; at all events very many of the living conditions of the inhabitants are dependent upon the geological make-up of the land. We shall skip over the great importance of the geological composition of the country for the surface formations which it determines. We shall pay attention only to the direct geological influences.

The Ukraine possesses very great mineral treasures. The most important mineral deposits for the present time, namely, coal, iron, salt and petroleum, are very large in the Ukraine. Of all these mineral treasures, however, only the salt deposits have had an historical significance, since far back in the period of the Kingdoms of Kiev and Halich they furthered active trade and commerce, and later favored the development of the Chumak organization. The other mineral treasure attained a greater importance only in the past century. When one considers today that

the Ukraine furnishes almost three-fourths of the coal and iron output of Russia, one can readily believe that the Ukraine might some day become as great an industrial country as Germany, England or Belgium. A single glance at the mining map of the Ukraine soon shows us, however, how small the regions containing this abundance of mineral wealth are in proportion to the entire territory. Then everyone can understand what the geological composition of the country means. It condemns the Ukraine forever to remain an agricultural country, altho it also permits the development of a considerable industry in several centers.

The same path of future development is outlined for the Ukraine by its fertile soil. Almost three-fourths of the Ukrainian territory lies within the Eastern European black-earth zone. The chornozyom, one of the most fertile species of earth on the globe, makes the Ukraine the most fruitful land of Europe. We need not wonder, therefore, that the Ukrainians have, to this day, remained almost entirely an agricultural people. The fertility of the soil must also remain the greatest wealth of the land into the remotest future. Now that the greatest grain lands of the earth, the American prairies and pampas, the Australian border-steppes, etc., have been almost entirely subjected to cultivation, the extensive market production of grain must, in the nearest future, give way to intensive production. Then the importance of the Ukrainian black earth, which has maintained its great fertility for thousands of years, will become even greater than it is today; and even today the Ukraine must be considered one of the main centers of grain production.

The fertility of the Ukrainian soil has had several unfavorable as well as favorable results. Like a promised land, the Ukraine has always lured foreign conquerors and colonists. Its fertility has brought the Ukraine much war and trouble. For centuries the fertile ground of the Ukraine

gave its own people only a part of its rich produce. To this day the foreign landowners and grain merchants demand the greater part of the harvest, while the native people of the Ukraine, who have dwelt in the land since time out of mind, can hardly reserve enough for themselves to keep from dying of hunger.

The fertile Ukrainian ground has exerted another important unfavorable influence over the Ukrainian people. The great fertility of its fields has caused a certain indifference and carelessness in planting among the Ukrainian peasants. To be sure, the Ukrainian is a better farmer than the White Russian, Russian or Roumanian. But for centuries he has been accustomed to depend on the fertility of his native soil and is, therefore, far behind the progressive farmer of Central or Western Europe. Antiquated methods of planting have until recently prevailed in the Ukraine without the slightest change. At the same time the ground has become scant, and progressive methods of cultivation must be adopted in order to get as much as possible out of the land and to balance the relative diminution of the cultivation area.

The geological conditions have also exerted a great deal of influence over the buildings and roads of the Ukraine. Clay houses, covered with straw, are still typical for the Ukraine today. Only in the most recent times brick houses, covered with shingle, are beginning to appear in the Ukrainian villages. Stone buildings were not original with the Ukraine, and were only adopted with the higher grade of culture. The cause of this is not the lack of building material. Almost everywhere in the Ukraine good building-stone is found beneath the thick cover of loose earth. But the abundance of clay always showed the nearer and easier way—clay huts. Even this small matter has had an unhappy influence upon the fate of the Ukraine. The ancient Ukrainian cities consisted

chiefly of wood and clay buildings and were fortified by means of earthworks, palisades and clay covered wooden towers. Walled houses and circular walls were very rare. This condition made the defence of the cities and castles, even against the attacks of nomadic tribes, very difficult. The ancient Ukrainian State would not have been destroyed so soon if it had had an abundance of strongly fortified walled cities.

The black earth and clay sub-layer of the Ukraine has, since the most ancient times, been an unfavorable influence as far as the quality of its roads are concerned. Outside of the negligence of the Polish and the Russian State, which alternated in the domination of the Ukrainian territory, natural conditions, too, have had a great deal to do with the roads in the Ukraine. The stone lay far below the loose cover of clay; it was used very rarely for building purposes; hence the idea of plastering the roads with stones could hardly occur to anyone.

We shall now consider the anthropogeographical significance of the Ukrainian *bodies of water*. Of the inportance of the Black Sea we have already spoken. The Ukrainian people lived in close connection with this sea in the days of the ancient Kingdom of Kiev, as well as in the days of the Cossack organization. But the lack of well-developed coast, of harbors and islands, have prevented the development of the Ukrainians into a seafaring nation, altho favorable tendencies were not lacking. The smallness and isolation of the Black Sea could not favor the development of navigation. The frequency of dangerous storms had a deterring effect, altho they strengthened the courage of the sailors. Then again, the smallness of the sea made the use of small vessels sufficient, which could more readily find shelter at any time or at any point along the coast, with its few harbors, than larger ships. These circumstances have hindered the development of extensive

navigation for long distance traffic. Hence, the Ukrainians, altho in certain periods of their history they gained a not inconsiderable familiarity with the sea, could not rise to a genuine seafaring people.

Much stronger ties connect the Ukrainian people with the rivers of its territory. The rivers have an anthropogeographical significance chiefly as ways of travel. The great main streams of the Ukraine, particularly the Dnieper and the Dniester, have always had the character of a transition between rivers and arms of the sea. At the time of the ancient Kingdom of Kiev, seafaring vessels sailing up the Dniester reached the royal city of Halich, and, in the time of the Cossacks, the Zaporog boats were pursued by the Turkish galleys as far as the rapids of the Dnieper. As far as ancient navigation was concerned, there was very little difference between river and sea; rivers were simply the extension of sea routes. In the ancient Ukraine, the Varangians were the first to use them in this sense. Their route "from the Varangian Land to Greece," which later became one of the main paths of the old Kingdom of Kiev, led from the Baltic to the Black Sea by way of rivers and portages. These wanderings of the Varangians in the Ukrainian water system are of great historical significance. For altho we are now almost certain that the Varangians were not the founders of the Kingdom of Kiev, it cannot be denied that they played a great part in the forming of it.

Rivers are natural, and therefore, also the easiest and cheapest roads. Especially in countries of great area, as the United States, Russia and the Ukraine, the importance of rivers as roadways is very great. Rivers connect the nations. The Dniester and the Dnieper connected the Ukraine with the sea, with the highly-cultured Constantinople, with the entire Mediterranean and Oriental world of culture. The Dnieper, thru its much branched water-web,

connected the Ukraine directly with Poland and White Russia, and indirectly with the Baltic Sea and Northern Europe. Even today, altho the canals connecting the Dnieper with the Vistula, Niemen, and Dvina are entirely neglected, the Dnieper River plays a very significant part as a great vein of traffic connecting different lands, peoples and producing regions. It may become more important still if it is made accessible to sea vessels and connects two distant seas.

In the Cossack period a considerable portion of the Ukrainians became a river people. The life and work of the Zaporog Sich depended entirely upon the Dnieper River. It protected, fed and clothed them. So strongly were the Zaporogs bound to the Dnieper, so necessary did the great river become to them, that all attempts to found new Zaporog centers on other rivers simply failed. We need not wonder, then, that the Dnieper is celebrated in all the Cossack songs as a sacred possession of the nation.

Closely connected with the character of rivers as roadways, is their importance as the directing lines of the movements of races. The history of the Ukraine tells us how the ancient Kingdom of Kiev penetrated toward the south along the Dnieper, and how the Kingdom of Halich reached the delta of the Danube by way of the Dniester and Pruth. Most likely the first expansion of the Ukrainians proceeded along the Dniester, Boh and Dnieper, southward. At the time of the great shifts of the Ukrainian southeast border, the advance of the Ukrainians was always directed southeast, their retreat always northwest. The history of the 16th Century shows plainly how the first pioneers of the new colonization movement—the Cossacks—pushed along the Dnieper, toward the southeast, into the steppe region. Altho it is a commonplace, yet it may be established without doubt that the whole Ukrainian nation took its way southeast along the Ukrainian rivers. To this

day the national territory of the Ukraine is advancing irresistibly in that direction.

But not only with the southeast has Nature connected the Ukraine. Important borderlands of the Ukrainian territory—Central Galicia, the region of Kholm, Podlakhia, Western Volhynia—with their river system, belong to the Baltic slope. At the same time, the transition from the Pontian river system to the Baltic system is very easy, the divides flat and low. The easy transition from the Dniester to the San and Buh, from the Pripet to the Vistula and the Niemen, was of great importance in the past, when western influences could easily penetrate these Ukrainian borderlands, and is of great importance in the present. If, in the near future, the now antiquated canals are improved and new ones built, the Ukraine will have as good connections with the west as it has with the east. Then the Ukraine may, from a hydrographic point of view, gain great importance as a transition country of important waterways.

By no means accidental is the remarkable fact that the Ukraine has no hydrographic connection with the northeast, the real Muscovite country. Of the country drained by the Don, only the region of the Donetz (which also flows southeast) and the mouth of the main stream belong to the territory of the Ukraine, and that only since a relatively short time. Outside of the Don region the Ukraine has no hydrographic connections with the Muscovite country, which has always had different directions, different channels of traffic, and different centers of waterways.

Modern geography does not consider rivers good natural boundaries, and does not believe in their powers of separation. In the Ukraine, rivers have played almost no part as boundaries. Even the Pripet, surrounded as it is with inaccessible swamps, does not make a good natural boundary between the Ukraine and White Russia. The ethnographic influences on both sides, and even the political

boundaries are hardly considered. Nor could the rivers be important lasting obstacles; instead of separating they are more likely to connect individuals, and even whole nations. Only as passing, momentary obstacles, they were of importance to the Ukraine in the innumerable wars which were waged on Ukrainian soil, and much Ukrainian blood was carried by them to the sea.

We now come to the relations between *climate and people* of the Ukraine. The situation of the Ukraine at an equal distance from the equator and the pole, on the southeast border of the European continent, which is so very favored climatically, has given the country one of the finest climates of the temperate zone. The hot summer permits of an extensive exploitation of the ground, the severe winter hardens the body and strengthens the soul, strong winds clear the atmosphere and bring motion into nature. The amount of rainfall is sufficient for the vegetable world, and is as far removed from the superabundance of damp Western Europe, as from the deadly dryness of the Asiatic steppes.

As for the general influence of the Ukrainian climate upon the people, it is in the main similar to that of Western and Central Europe. The Ukrainians are one of the northern peoples of Europe, and they show it by the difficulty with which they become acclimated to the tropical conditions of Brazil and Argentina. There conditions are much worse for the Ukrainians than for the Spaniards, Portuguese and Italians, but at least better than for the English or Scandinavians. The Ukrainian is already accustomed to a hot and long summer in his native land. He accustoms himself quickly and easily to the cold Siberian climate, because the frosts in the Ukraine, despite the short frost period, are very severe. For climatic reasons then, the colonial capacity of the Ukrainians must be even better than that of most of the peoples of Western or Central Europe.

The climate of the Ukraine, which we have discussed in

a preceding chapter, is very uniform thruout the entire great territory, with the exception of the southern borders. This homogeneity is favorable on the one hand, because it advances the homogeneity of the people, unfavorable on the other hand, because differences in climate as a rule enliven and quicken the course of history of a country. The variations in character of the people and in the mode of living due to the differences in climate give countless impulses to development and to progress.

Despite the general uniformity of the climate, we do find appreciable differences when we compare the northern border regions of our country with the southern ones. The Ukraine has the same climatic peculiarity as France on a small scale, the transition of the temperate to the Mediterranean climate without sharply defined boundaries. In this way some difference of products does arise, which advances the development of trade and commerce.

In our description of the Ukrainian climate, we emphasized its peculiar position as compared with the climates of the adjacent districts of Eastern Europe. Just beyond the borders of the Ukraine, to the north and east, the annual temperature becomes lower and the duration and severity of the winter suddenly becomes very much greater. The Muscovite climate and that of the Ukraine would not be ranked together by anyone who understands anything about the matter. And yet the renowned historian and publicist, Leroy Beaulieu, considers a uniform climate as one of the chief causes of the unity of Russia. In January, he writes, one may ride in a sleigh from Astrakhan to Archangel; the Sea of Azof and the Caspian Sea freeze over just as the White Sea or the Finnish Gulf, the Dnieper as well as the Dvina; the winter wraps north and south in one vast blanket of snow every year. Less strong are the ties formed by the summer, but there is a preponderance of unifying circumstances.

Such statements can come only from one who has no conception of climatology and anthropogeography. On such premises no conclusions may be based, except by persons who have previously constructed a hypothesis and now wish at all costs, to prove its validity. For it is certainly generally known that the same winter covers all Scandinavia, Poland, Germany and Northern France together with the same white mantle. In the winter-time one may travel by sleigh not only from Astrakhan to Archangel, but also to Irkutsk in one direction and to Stockholm in the other, and even to Paris. Not only the Dnieper freezes, but also the Vistula, the Oder, the Elbe, and sometimes even the Seine. If we consider ice and snow as the basis of "unification," very little of Europe remains. For not only in snow and ice should we seek signs of uniformity in climate, but in its general character, in the community of all climatic characteristics. It is true that the Ukraine is part of the Eastern European climatic province, but in this province we may also include almost all of Sweden, almost all of Poland, a part of Austria-Hungary and Prussia, and Supan adds all of Western Siberia, Caucasia and Turkestan as well. Every geographer understands that so great a climatic province must be divided into smaller districts even in climatology, not to mention the details of daily life. Every inhabitant of Southern Russia, whether a Ukrainian or not, feels the difference of the Ukrainian climate from that of St. Petersburg or Moscow very keenly. There is hardly a Russian author who does not describe the fine climate of the Ukraine as wonderfully mild compared to the inhospitable climate of his native land. How keenly, then, does a Ukrainian feel the difference in the two climates, who is forced to live in the cold Muscovite country.

The climatic difference is illustrated more clearly still when we consider the matter from the climatological side. Voyekov, the great Russian climato pzeshasiemlogist,

expressly the slight cover of snow in the Ukraine, the relatively high temperature of the warmer periods of the winter, and the abnormally warm spring, which is due to the lightness of the snow-cover, which requires only a little of the spring warmth to melt it. The snow cover of Poland, Lithuania or Northeastern Germany is much more similar to that of Muscovy than the Ukrainian. The January isotherms in the Ukraine switch over from the N. to S. direction to the N. W. to S. E. direction. The isotherm of the typical Russian winter (January —8 to —10°) avoids the region of the Ukraine entirely. It is true that the Dnieper and Dniester have the same amount of ice as the Volga or the Dvina. But here the main consideration should be the period of freezing; the Dvina is covered over for 190 days, the Volga 160, the Dnieper in the Ukraine only 80 to 100 days, the Dniester 70 days. These are certainly greater differences. Still greater differences between the Ukrainian and the Muscovite climates become evident when we compare the length of the winter, or the time suitable for work outdoors. In Great Russia this time is at most four months; in the Ukraine, at least six and a half; and in its southern borderlands even nine months. Such differences play a great part in the life of the people. The time of the winter obstructions and enforced idleness is twice as great in Russia as in the Ukraine. The struggle with the cold takes on forms in the Ukraine which are entirely analogous to the Western European forms. In the Muscovite country we observe polar elements in the winter-life of the people. The Ukrainian winter does not depress the people, does not bore them to death, but only steels their bodies in the struggle with the cold and gives them the desired rest after the summer's heat. The winter is the time of the most intensive social life among the Ukrainian peasantry.

The spring of the Ukraine, warm and sunny, has quite

a different influence upon people to that of the cool, damp Russian or Polish spring. The sunny climate of the spring and the cloudlessness of the summer have produced in the Ukrainian a quiet, fundamentally cheerful temper. Yet, we find in him none of the gaiety which is characteristic of the people of the south as compared with the people of the north, but rather a quiet melancholy. It is just the Russians or the Poles that are of a much gayer sort than the Ukrainians, livelier, more easy-going in their social life, more frolicsome; not the Ukrainians, but the Russians and Poles, are the very ones that are vying with one another for the epithet of the "Frenchmen of the North" or "of the East," respectively. (This remarkable fact is due, in the first place, to the unhappy history of the Ukraine). But, on the other hand, the melancholy of the Ukrainians is quiet, while the occasional melancholy of the Russians turns into despair and pessimism.

The Ukrainian summer and fall, warm and beautiful, has made the Ukrainian, in contrast with the Russian, a farmer par excellence. The warmth of these seasons is very similar to Southern European conditions, and gives to the life of the Ukrainian people many southern characteristics. The life in open communion with Nature, the accessibility of her organic treasures, is much more pronounced in the Ukraine than in Russia, White Russia or Poland. In the warm seasons the Ukrainian lives much of the time outside his house. In the day he works continuously in the field or in the garden, and even at night he usually sleeps outdoors in the orchard or the yard. If the fields are at a distance from the village, a large part of the population of the place camp out in the open fields for several days during harvest time. These are all characteristics of the life of the south. Yet we see in our people no real characteristics of the people of the south. Despite all this, the Ukrainian is much more domestic than the

Russian, more frugal and more temperate; the "extravagant Russian nature" is entirely foreign to him. We have already seen that the Ukrainians do not have gay manners, and in like manner their activity of thought is less than that of the northern peoples, the Russians and the Poles. Yet the depth of thought of the Ukrainians is much greater, and their popular poetry incomparably deeper than that of the Russians or Poles. Dreaminess and reserve of character is much greater in the Ukrainians who live in the south than in the Poles and Russians who live in the north. All these are the effects of a sorrowful past. Only in one respect do the Ukrainians bear out their southern type of character; in their great abilities and their generally rich intellectual gifts. Every unprejudiced observer must admit that the Ukrainian peasant, almost the only typical representative of our nation, surpasses almost all his neighbors in his natural accomplishments.

The laziness and weakness of will peculiar to the southern nations compared to the northern, have not developed into a typical characteristic among the Ukrainians. The often remarkable indifference of the Ukrainian is rather an outgrowth of sad historical events than of the climate and the nature of the land in general. At most one might blame the great fertility of the black soil. For the faith in this fertility is almost never misplaced and favors the indifference of the peasant. On the other hand, the five hundred years of Tatar oppression were actually able to produce an inherited indifference. And why strive and work, when at any moment the Tatar hordes might come and take or burn everything?

Despite this historically inherited indifference, as we may call it, the laziness peculiar to southerners cannot be ascribed to the Ukrainians. They are better farmers than all their neighbors, with the single exception of those who adopted progressive farming, as, for example, the Prussian

Poles. Domestic industry is also well developed among the Ukrainians, and the Ukrainian seasonal workers are actually sought after, especially in Germany, and earn a great deal. The Ukrainian harvest-worker is more sought after and better paid than the Russian. He works slowly but methodically, and achieves good results. The Ukrainian colonists find tolerable living conditions in places in which the Russian starves to death or from which he flees.

In like manner weakness of will is not a real peculiarity of the Ukrainians, in spite of their southern location. The thousand years' struggle with piratical Asia, the independent establishment of two great state organizations, especially the second, after three centuries of slavery, the new awakening in the 19th Century under such difficult and hostile conditions, the splendid colonial expansion—all this speaks rather for great energy than for weakness of will. It is certainly true that in our people, oppressed by centuries of serfdom, energy and strength of character must hide beneath a thick crust of indifference, and our educated people find their energy weakened by the bad influence of foreign cultures. But these facts show most clearly that an enormous amount of energy and will-power is latent in the Ukrainian people, which, to this day, however, has not been properly developed.

Among historians and anthropogeographers it is a much used commonplace that the northern peoples always appear as conquerors who subjugate the southern peoples, and that they are always the founders of states in their particular climatic zones. The Germans overthrew the Roman Empire, the Northern Frenchmen founded the French state, the Northern Spaniards the Spanish, the Northern Italians, the Italian state, and the North Germans united Germany. It is natural, therefore, that this commonplace should be applied also in Eastern Europe. The "Northern" Russians have, by the natural necessity of

history, "united" the "southern" Russians. The same explanation should be accepted as a necessity by the Ukrainians, and nothing should be done to resist this condition!

In reality this commonplace, like so many others, is false. The Ukrainians, as we have already observed, possess no such characteristics, as opposed to the Russians, as a southern race possesses with regard to a northern neighbor. To be sure, the Russian state now dominates the Ukraine. But the present Russian state is, after all, only a branch of the ancient Ukrainian Kingdom of Kiev. The ancient Ukrainian Kingdom subjugated the present Russian territory, organized it as a state, even partly colonized it, and gave it a ruling dynasty. The ancient Ukrainian state tradition was usurped by the Muscovite states, and gave them all the prestige which the Muscovite possesses. It was only the Tatar invasion that entirely held up the political development of the Ukraine, and, at the same time, favored the development of the Muscovite Empire. Only the Tatar invasion brought Moscow the supremacy over the Ukraine which Russia still enjoys. It was a foreign conquest, which has nothing to do with climatic influences. The very name of Russia only came into use in the time of Peter the Great!

From this survey of climatic influences, it appears, unequivocally, that the Ukrainians cannot be classed with the so-called southern peoples. The Ukrainians have all the characteristics of the races of the North Temperate Zone, who are the representatives of the European culture of today. The growth of national consciousness and of culture will, without a doubt, raise the Ukrainians to the standard of the European family of cultured nations. The nature of the country has, by means of its influences, given them all the necessary prerequisites.

The significance of the *flora and fauna*, for a lowland

people like the Ukrainians, should be considered very great. From the physico-geographical description of the Ukraine, everyone will observe that the Ukraine may be naturally divided into two main parts, the forest country and the steppe country. The mountain formations take up only a comparatively small part of our territory.

Even among the Ukrainians themselves, the opinion is very widespread that they are a steppe-people. The enemies of the Ukraine have largely represented them in the eyes of Europe as a semi-nomadic steppe-people, devoid of all culture, which thru their growth and development might threaten the cultural treasures of Europe. These views, tho based partly upon the great part the steppe has played in the history of the Ukraine, and partly upon the unquestionable fact that three-fourths of the present Ukrainian territory lies within the steppe region of Eastern Europe, are, nevertheless, incorrect. For, a glance at the floral map of Europe is enough to show that the so-called old Ukraine, that is, the original Ukrainian territory, lies almost completely within the forest region. That means Galicia, Kholm, Western Podolia, Western Volhynia, Kiev, Chernihiv, etc. From here the most ancient Ukrainian colonization advanced to the Black Sea, only to lose all the steppe districts again upon the sudden nomad attack. For centuries the steppes of the present Ukraine were the stamping-ground of Mongolian-Turkish nomad tribes. The Cossack organization at last wrested great areas from them, and made these accessible to Ukrainian colonization. And only the last colonial expansion of the Ukrainians has been able to reach the Pontian shore again. The Ukrainians, then, were originally a forest and wood-meadow people. They have become in part a steppe people, but only thru their latest colonial expansion. And, just as today we would not call the English or the North Americans steppe peoples, merely

because they colonized the American prairies and now inhabit them, so we can no more call the Ukrainians a steppe people, merely because they have colonized the Southern European steppes.

Not the steppe, but the forest and the wood-meadow are the native floral conditions of the Ukrainian. In the forest zone and in the adjacent parts of the forest-meadow zone, the seed of the Kiev State originated. In its expansion, this state first of all embraced the forest regions of the Ukraine, while the steppe regions were conquered later and kept under the dominion of the state for a comparatively short time only. The second center of the old Ukrainian historic life also lies within the forest zone of the Ukraine, namely, the Galician-Volhynian. Even the center of Ukrainian historical life that extended farthest into the steppe, the Zaporog Sich, was dependent for its existence upon the great wooded areas of the Veliki Luh on the Dnieper and its tributaries, and thus bound to the forest country.

The pronounced inclination of the Ukrainian people to agriculture, from the most ancient times down to the present, is another proof that it is a forest people, paradoxical tho it may seem. For it is an undisputed fact that, altho the steppes have apparently been most favorable to the cultivation of the grain grasses, and altho the present main centers of the grain production of the world lie in the steppe country of the prairies, pampas, Ukraine, yet nowhere in the whole world have the steppes brought forth an agricultural people. No steppe-people, anywhere, ever began agriculture of its own accord. The forest peoples had to teach the steppe-races agriculture in the first place. Only in case of bitter necessity do the inhabitants of the steppes take to the plough, and never has agriculture become part of their system to them.

How great was the part of the Ukrainian forest region

in the past life of the nation has already been suggested in Book I. Only to the forests does the Ukrainian nation owe its preservation during the Tatar attacks. The forests were the only refuge of the people, to the forest zone the inhabitants of the steppes retreated whenever the steppes were threatened by the nomads, moving back again at a favorable opportunity.

The Ukrainian forests have also been of great importance as boundaries. The function of the forest to form important boundaries for races on a low grade of culture is familiar to anthropogeography. In Ukrainian history, too, this characteristic of the forests has appeared prominently. The forests of the Ukrainian Polissye were of great importance for the fencing-off of the East Slavic tribes, and by forming a wide zone, difficult of passage, separating the East Slavic tribes of the south from those of the north and west, they have contributed a great deal to the formation of the three East Slavic nations of today. In the days of the ancient Kingdom of Kiev, the centers in which the Muscovite nation later developed bore the name of *Salissye* (land behind the forest). There was a Pereyaslav Saliski, Vladimir Saliski, etc.

The significance of the forest as a boundary has also made itself felt in the internal history of the Ukraine. For the grade of culture upon which the Ukraine remained thruout the Middle Ages and in the early centuries of the modern era, the forests constituted good boundaries. The forest divided the population into small groups, which lived apart in separate clearings, every group living its own life. The forest made communication difficult and did not permit the organization of a powerful central state. The forest character of the old Ukraine was the natural chief cause of the formation of principalities in the ancient Kingdom of Kiev, and advanced that fateful particularism. It is not by mere accident that Kiev lies on the border of

the forest zone of the Ukraine. Together with other causes, the thinner forests were an aid to the more rapid development of the Kiev principality, and made it the natural starting point for the great expansion under the reigns of Oleh, Sviatoslav, Volodimir.

From his original territory the Ukrainian took with him his great preference for trees, a love of trees which causes the white huts of a typical Ukrainian village to be bordered with the fresh green of leaves. The green of the trees in which the Ukrainian huts disappear, enables us immediately to differentiate a Ukrainian from a Russian village, which seems to be afraid of trees.

Consequently, the steppe is not originally native to the Ukrainian. The words of the Cossack song, "The steppes so wide, the joyous land" were not composed until the latter days of the Cossack organization. For centuries the steppe meant to the Ukrainian the terrible, mysterious, "wild field," from which at every moment the nomad hosts, like a swarm of locusts, invaded the Ukraine. The struggles of the Kingdom of Kiev with the nomads show an anthropogeographer very plainly the reason of their final failure. The ancient Ukrainians, being forest dwellers, simply could not successfully fight the riders on the natural steppe or the artificial steppe of their own fields. The ancient Ukrainians did not feel at home in the steppe. A long evolution was necessary before the Ukrainians adapted themselves to the steppe, and the beginning of this adaptation was the Ukrainian Cossack organization. Not until after the formation and development of the Cossack organization could the Ukrainian people successfully advance into the steppe zone and colonize it. Yet the denser settlement of the steppes did not take place until toward the end of the 18th Century. Some of these early Ukrainian settlements have, to this day, not lost the character of new colonies. But these steppe districts were colonized by so great a

mass of Ukrainian colonists, and they increased so rapidly in the fertile country, that today more than half the Ukrainians live in the steppe zone, and thereby favor the widespread commonplace that the Ukrainians are a steppe people.

The wealth of its flora and fauna very soon enabled the Ukraine to prosper. Very early it was called a land "where milk and honey flows." This natural wealth of the organic world possessed the greater worth for the reason that it was not soon exhausted, and offered, as it still offers, to the population, an opportunity for constant work, enduring activity and steady development. The natural treasures of the Ukrainian territory are not the treasures of tropical countries which favor laziness, but the treasures of a more thrifty Nature, which require constant work to properly exploit them.

Man has changed the natural conditions of the flora and fauna of the Ukraine to a great extent. These changes are not as fundamental as in Western and Central Europe, but they have a great anthropogeographical significance. The forest zone of the Ukraine is thinned even beyond the normal and in places destroyed. The artificial steppe of the cultivated land has penetrated very far to the north and west. Certain plant species have become rare, others have entirely disappeared, while, on the other hand, new ones have been acclimated. The original wealth of game of the Ukraine is a thing of the past now, and the great abundance of fish is almost all gone. On the other hand, man has increased the number of domestic animals enormously.

All these conditions give to the Ukraine characteristics of a cultivated country. As we shall see further on, the degree of exploitation of natural resources is still very low, much lower than in the genuinely cultured countries of Europe.

Despite all this, the Ukraine must be considered a land

exceptionally endowed with riches by Nature. Up to the present day this has been a misfortune, for from all sides strangers have come in to take with full hands of the riches of the Ukraine.

But the time has come, at last, in which the possibility lies in the hands of the Ukrainian people to make use in the future of the rich resources of the Ukrainian land for themselves.

## Economic-Geographical Survey of Ukraine

To give a lucid economic-geographical view of the Ukraine today is very difficult—almost impossible. The Ukrainian territory is divided among three states, and nowhere does the Ukrainian country form unbroken administrative units. Consequently, the official statistics cannot give an exact picture of the economic conditions of the Ukraine. The following attempt, also, can lay no claim to accuracy. A very heterogeneous and incomplete mass of material has made it impossible to attain the desired accuracy and uniformity.

The Ukraine differs from the cultural countries of Central and Western Europe first, in that its settlement is not yet complete, so to say. Only the northwestern regions of the "Old Ukraine" possess a sufficient density of population. The entire south and east are thinly, in places even very thinly, peopled. And the complete exploitation of the natural resources is still a far way off, even in the most thickly settled parts of the Western Ukraine.

In our economic-geographical survey of the Ukraine, we shall begin with the most primitive branches of the exploitation of natural resources and proceed from them to those that are more advanced.

## Hunting and Fishing

The most primitive way of exploiting the natural resources of a country has always, and everywhere, been

hunting and fishing. Both played a great part in the economic life of the Ukraine a thousand years ago. Our ancient chronicles contain many reports of the great abundance of game and fish in the Ukrainian land, and of their great importance for the population. Five centuries of Tatar warfare effectively interrupted the exploitation of these natural treasures, and even in the 16th and 17th Century the Ukraine still aroused the amazement of travelers from foreign lands, thru its great wealth of game and fish. In these centuries, hunting and fishing were among the main branches of industry of the Cossack border population of the Ukraine. As late as the second half of the 18th Century, hunting and fishing were still two of the main sources of industry of the Zaporog Sich. But soon agriculture began to gain ground in the regions ruled by it, the density of the population increased, and with it the fundamental strength of the Zaporog organization. This circumstance seemed threatening to the Russian government, and was the chief motive for the destruction of the Sich.

Today hunting has almost no significance in the economic life of the Ukraine. Altho in the year 1906, in Galicia, 500 stags, about 10,000 roes, over 2000 boars, about 90,000 rabbits, over 8000 pheasants, 50,000 partridges, 30,000 quail, 10,000 woodcocks, and 14,000 wild ducks were killed, the figures for other countries at the same time were much higher; in Bohemia which is more thickly populated there were brought down more than 800,000 rabbits, 1,000,000 partridges, etc. These figures show that in Galicia the natural wealth of game has declined considerably, while the artificial conservation of game has not yet begun. In the Austro-Hungarian part of the Ukraine, hunting has become a mere diversion of the upper classes—a mere sport. The hunting monopoly of the upper classes even bring to the country folk serious disadvantages, for boars and stags cause great damage to agriculture, especially

in the Boiko and Hutzul country, and it is forbidden to keep them off. This circumstance encourages poaching, which in many districts is quite common. The extermination of beasts of prey, bears, wolves, lynx and wildcats is as a rule, undertaken only in occasional general chases, but the Ukrainian mountain-dwellers are very well able, despite all game laws, to defend themselves and their herds effectively from these wild animals. In 1906 more than 9000 foxes were brought down in Galicia.

In the Russian Ukraine the economic importance of hunting is as slight as in Austria-Hungary. Nowhere in this region do we find a developed, profitable hunting industry Even in the Polissye hunting is not very important and is at most an avocation for a few forest settlers. Here rabbits, roes, boars, elk, grouse, wild fowl and water-game are sometimes hunted. Bison and beaver hunting is now very strictly forbidden. Many foxes and badgers are killed and a relatively large number of bears and wolves. Volhynia is much poorer in game, and still poorer are Podolia, and the districts of Kiev, Poltava and Kharkiv. In all the places, the most that one can get a shot at, aside from wild fowl, is rabbits and foxes, and sometimes wolves. In the forests and swamps of the Chernihov country there is a somewhat greater abundance of game. Hunting is most important, relatively, in the southern part of the Ukraine, on the Black Sea border and in the Caucasus lands. Besides roes, rabbits, and foxes, there are hunted in the steppes: wolves, sayga-antelopes and wild dogs; and in the Caucasus: bison, stags, bears, and lynx. The number of steppe and waterfowl, *e. g.*, bustards, partridge, quail, wild geese and wild ducks, and of mountain fowl, as pheasants, mountain-quail, and grouse, is still considerable. Collecting the eggs of waterfowl is still a remunerative occupation. On the shores of the Caspian Sea 130,000 Caspian seals are killed every year.

Of much greater importance than hunting is the *fishing industry*. It is only a weak reminiscence of what it once was, yet it remains to this day an important economic element. The Ukrainian fishing industry is carried on in three regions: on the high sea, in the river-mouths, and in the interior of the land, in rivers, lakes and ponds.

The actual sea-fishing industry attains relatively slight results, on the average 24½ million kilograms a year. On the Black Sea, along the shores of Bessarabia, Kherson and Tauria, a great amount of mackerel, sardines, herrings and sturgeon-like fish are caught. The main fisheries of the northern Pontian shore are situated at the Kinburn bar, at the island of Tendva, in the Bay of Karkinit, at Cape Tarkhankut, at Eupatoria, Balaklava, Yalta, Sudak, and Theodosia. Fishing on the high seas, because of its great cost, is undertaken only by the large enterprising companies, who hire the Ukrainian fishing companies (*artili*) for the entire summer. Of late, fishing on a small scale has begun to develop. The small fishermen catch chiefly mackerel, which are then salted, or, less often, smoked. They also go after the small but savory Black Sea oysters, of which an average number of one million a year are gathered.

Far greater profit is yielded by the fisheries at the mouths of the rivers, in the limans, and particularly on the largest liman of all, the Sea of Azof. The annual yield here attains an average of 140 million kilograms. At the mouths of the Danube the chief fishing center is Vilkiv. Toward the end of the 19th century there lived at this place 900 independent fisherman, who sometimes united to form *artils*. Here they catch chiefly sturgeon and other fish of the sturgeon class (on the average 30,000 a year), and four and a half million of Pontian herrings. At the mouths of the Dniester, Boh and Dnieper, chiefly river fish are caught. Herrings and sturgeon-like fish are of minor consequence here. The fishermen in this region are

always organized either in *artils*, in which the profits are shared equally among the members, or in so-called *takhvi*, which are hired by the entrepreneurs. The chief center of the fishing trade and of the putting up of canned fish, is Odessa. Yet the Bay of Odessa cannot compare with the Sea of Azof in fish production. The average value of the annual haul here exceeded a million rubles in the latter years of the 19th Century. Over 11 million kilograms of sturgeon-like fish and other large fish, besides 7 million herrings, were caught here annually. In some winters more than 70,000 fishermen, with 20,000 to 30,000 horses and oxen, gather on the frozen Sea of Azof. With gigantic nets, which are sometimes nearly two kilometers long, a very profitable fishing industry is carried on here. Important fishing centers, with great freezing plants and works for salting and smoking, are situated in Osiv (Azof) and Kerch. The members of the fisher *artils* come principally from the Poltava and Kharkiv country.

The Ukrainians may also claim a rather prominent part in the fishing industry of the Caspian Sea, which yields more than half a billion kilograms of fish annually. The Ukrainian Caspian fishermen come from Ukrainian colonies on the Volga, and from the eastern parts of the Ukraine proper.

The interior fishing industry on the rivers, lakes and ponds now has only slight significance. On the Dniester and Dnieper on the Pripet, Desna, Sula and Orel, and on the Donetz there still exist here and there *fisher-artils*, but the fish are caught only for local use. In the Polissye region the fishing industry still yields some profit, *e. g.*, in the District of Mosir about 40,000 rubles a year, in the District of Pinsk only 3500 rubles. Lake Knais yields 10,000 rubles worth of fish annually. All of Galicia yields about 1,500,000 kilograms a year, of which two-thirds are contributed by the Ukrainian part of the country.

In examining the fishing industry of the Ukraine one cannot escape reminiscences that are painful. Everywhere a ruthless system of pillage and waste is carried on. The excessively fine meshes of the nets catch the young broods of fish with the old, and these are either sold for a few kopeks a pound or simply thrown away. The fish which come up the rivers to spawn are ruthlessly intercepted. A closed season or region barely exists, except on paper. We need not wonder, therefore, that the abundance of fish in the Ukraine is rapidly decreasing, and fishing is losing its importance more and more. Not a soul thinks of a rational method of breeding fish, of increasing the stock of fish in the streams. In Galicia a start has been made, but thus far the results are very slight. And yet the Ukraine, being an almost exclusively agricultural country, where there is no factory sewage to poison the rivers, could very easily recover its fame as a land abounding in fish.

The related industry of crab-fishing is not developed in the Ukraine, altho the Jewish dealers of Eastern Galicia send whole wagon-loads of crabs from Galician and Russian Podolia to the west. The old Zaporog regions have been famous since ancient times for their abundance of crabs. In Oleshki there also exists a drying-plant for crabs' tails.

From this short survey of the hunting and fishing industry of the Ukraine, we perceive that these branches of industry play only a small part in the economic life of the Ukrainian population. A further proof of this fact is the small percentage of the population which engages in this work. This percentage amounts to 0.2% in the Russian-Ukraine; in the Austrian Ukraine it must be much smaller still.

## Forestry

How extensive the wooded area of the Ukraine is cannot be determined exactly without detailed investiga-

tion, for the same reason that statistical figures concerning the Ukraine in other fields are difficult to determine. An approximate calculation of the forest surface gives us an area of over 110,000 square kilometers, that is 13% of the entire surface of the country. These figures show us that the Ukraine is one of the more sparsely-wooded countries of Europe. Of all the larger territories of our continent, only England, with its 4%, is poorer in forests. There remain only smaller territories, as Portugal (2.8%), the Netherlands (8%), Denmark (8.3%), Greece (9.3%). So old a land of culture as France still possesses 15.8% forest surface, Germany 25.9%, Hungary 27.4%, Austria 32.7%, Russia 38.8%. Among the large territories, the United States stand nearest to the Ukraine as far as their forest area (10.3%) is concerned.

The causes of the comparative lack of forests in the Ukraine are to be sought, first of all, in the fact that it includes large parts of the steppe region of Eastern Europe. The percentage of forest land in the various regions of the Ukraine show us this most clearly. The mountain regions still retain the highest proportion of forest. The Bukowina has 42% of forest (District of Kimpolung 78%), the Ukrainian region of Northeastern Hungary about 40% (Marmarosh 62%). Then come the Ukrainian regions of the forest zone: Polissye, from Minsk down 38.2%, Volhynia 29.6%, Galicia 25.4%, Grodno 25.5, Podlakhia, starting from Lublin, 25.1%, from Sidletz 19.8%. In the same class, as far as forest area is concerned, the Kuban region seems to stand. Besides the heavily wooded mountain region, this division includes the *luhi* in the foothill country and the treeless steppes; hence the percentage comes out very small—19.8%. The transition between the forest and the steppe zone is indicated by the following series: Kiev 18%, Chernihiv 15%, Podolia 10.9%, Kharkiv 8.5% of forest area. The steppe regions of the Ukraine have very little

forest land: Kursk 7.1%, Voroniz 6.8%, Bessarabia 5.8%, Tauria (Yaila forests 5.7%) Poltava 4.7%, Katerinoslav 2.4%, the Don region the same, Kherson 1.4%, Stavropol 0.3%.

In this distribution of forest we see a certain analogy between the Ukraine and the United States. Here the steppes are treeless, there it is the prairies. Here the forest predominates in the Carpathians, there in the Appalachians; here, just as there, we have zones of transition from forest regions to the steppes. But there is another point of similarity between the Ukraine and the United States—the ruthless exploitation and waste in forestry. This criminal waste is the second main cause for the lack of forests of the Ukraine. It began in the 16th Century and it still continues today. Historical sources mention great forest formations, even in those regions of the Ukraine which are now poor in forests. The "Great Forest" (*veliki luh*) in the Zaporog land, the "Black Forest" at the sources of the Inhul, the large forests of the Poltava and Kharkiv region, the Derevlan jungles, the giantic forests on the Buh and Vislok, in the Rostoche, all have either entirely disappeared from the earth's surface or have changed into miserable remnants, which, at any moment, may fall a final victim to human greed. A host of geographical names, in regions which are almost entirely treeless today, point to former forests. Thick, primitive oak trunks are found in the beds of rivers which flow only thru the treeless steppe-region. In five decades, in the second half of the 19th Century, the forest area of the Government of Kharkiv decreased from 10.9% to 8.5%, in Poltava from 13% to 4.7%, Chernihiv from 17.1% to 15%. Detailed investigations of the ground have proved that the forest area of the District of Poltava was originally 34% (now 7%), of the District of Romny 28% (now 9%) and of the District of Lubni 30% (now 4%). Similar

conditions of forest devastation prevail everywhere in the Ukraine. Thus, the forest area of Galicia, for example, has decreased by 2000 square kilometers, *i. e.*, almost 3% of the total surface area of the country, in the course of the last century.

We have already frequently called attention to the sad results of this criminal waste for the entire land. But, because of the low grade of culture of the nations dominating the Ukraine, the Polish nation and the Russian, no attention is paid to the fatal results of forest destruction. The forests are recklessly cut down for lumber, and year by year the scarcity of wood is being felt in most regions of the Ukraine. Only in Podlakhia, Volhynia, Polissye, and in the mountain regions of the Ukraine, is there no scarcity of wood. The three cubic meters of wood which, on the average, are due every inhabitant of the Ukraine, are not easily accessible to more than one-fifth of the Ukrainians. At the same time, the forests of the Ukraine are, as a rule, badly managed. Even in the Austro-Hungarian parts of the Ukraine there are very few professional foresters; in Galicia for example, 250 to 800). Conditions are still worse in the Russian-Ukraine. Consequently, the forest does not grow up again very well, and a great deal of wood is simply ruined. This happens chiefly in the mountain forests of the Carpathians, where hundreds of thousands of cubic meters of wood decay every year. In the regions which are poor in forests, the products of the woods are carefully and economically used, so that, for instance, from one hectare of forest in the Poltava region, 11.5 cubic meters of wood are produced every year; in the region of Katerinoslav, 7 cubic meters. Of the production of the Ukrainian forest, building wood constitutes only a comparatively small part. There is a crushing preponderance of firewood, especially in the regions which are poor in forests. Building wood, in large quantities, comes from the forests

of the Polissye and of the Carpathians only. The export of building wood from Galicia and the Bukowina reached a million and a half cubic meters annually at the end of the century. The export of wood from the Polissye, starting from Minsk, exceeded 900,000 cubic meters. The complete production of Galicia in the year 1900 was 3,660,000 cubic meters of building wood and an equal quantity of firewood.

The reclaiming of forests, even in the Austrian Ukraine, where it is required by law, is not properly administered. It is still worse in the Russian Ukraine. Hence, the forest surface of the Ukraine is constantly decreasing instead of remaining unchanged or even increasing, as usually happens in the cultured lands of Europe. And yet, the Ukraine is one of those countries in which the forest problem is a life probelm.

The Ukrainian people engage in the Ukrainian lumber industry only as labor-power, while the money profit goes to strangers—great landowners or middlemen. The forest-area which is in the possession of Ukrainian peasants is very small, even in Galicia, where at the time of the removal of the labor tax system, at least small patches of forest came into the possession of the peasant communities. Almost all the forests of the Ukraine belong to the large landowners, the clergy and the national lands.

The lumber industry and the industrial exploitation of the forest products engages but a slight part of the Ukrainian people. In the Russian Ukraine the percentage of such workers is barely 0.1%. In this percentage, however, the entire mass of Ukrainian peasants which seeks its incidental profit in forest work, is not considered. In the Carpathian regions of the Ukraine this percentage increases a hundredfold and more.

## Agriculture

Since the very first beginnings of the history of the Ukraine, the main occupation of its people has been, and

has remained to this day, agriculture. To give a complete picture of Ukrainian agriculture is beyond the scope of our little book. Even a detailed economic study could not do justice to this task. Hence, we shall have to limit ourselves to its most important phases.

Almost nine-tenths of the Ukrainian people are engaged in agriculture. In the Russian Ukraine, the agricultural percentage of the population, according to official estimate, is 86.4%. This figure is probably correct for the Austrian-Ukraine as well, altho the biassed calculations of Buzek place the percentage of farmers among the Ukrainians of Galicia at 94.4%. These figures show us very clearly the significance of agriculture in the economic life of the Ukraine. Now, a person seeing these figures and knowing the fertility of the Ukraine might easily imagine that agriculture here stands upon a high plane. Such a view, however, would be entirely false. Agriculture is on a very very low plane in the Ukraine.

Yet the causes of this sad state of affairs do not lie in the nature of the land. The climate of the Ukraine favors the cultivation of grains as no other does. Barely one small part of the steppe-zone is unfavorable to agriculture, because of its frequent periods of drought. The soil of the Ukraine is one of the most fertile on the whole globe. More than three-fourths of the Ukraine lies in the Black Earth Region, and many varieties of soil in the northwestern part of the Ukraine are by no means without value and at least equal to the best soils of Germany. Not in Nature, but in the cultural conditions, lie the causes of the low grade of Ukrainian agriculture.

The first and main cause is the lack of enlightenment among the people of the Ukraine. The Ukraine peasant cultivates his field entirely after the manner of his forefathers, which may have proved excellent a hundred years ago, and actually did make the Ukrainian peasant appear

as the best farmer among his neighbors of other races, but they fail completely in these days of intensive cultivation of the soil. The illiteracy of the Ukrainian peasant renders almost inaccessible to him all the great progress of agricultural science. The old methods of cultivation, the primitive agricultural implements, waste his energy and his stock of living resources. The use of agricultural machines, which may be of great significance even in intensive farming on a small scale, is almost unknown to the Ukrainian peasant. The progressive amelioration of the soil and the national rotation of crops is not at all of wide application. And all efforts at enlightening the Ukrainian peasantry are hindered as much as possible by the governments dominating them, by their Polish and their Russian masters.

The highest level, relatively, in agriculture, is attained by the western borderlands of the Ukraine, Podlakhia, the Khohos country, and Galicia. The poorer quality of the soil has always required more intensive cultivation here. Besides, the influences of advanced methods of cultivation sifted thru more easily here, whether indirectly thru the Polish territory, or directly thru the influence of the German colonies. The greater enlightenment of the Ukrainian peasants of Galicia has brought it about that they now regularly apply rational rotation of crops and fertilization of the soil, even with artificial fertilizers, and possess pretty good agricultural implements. The three-field system has disappeared almost everywhere in this region, and continues in use only in the most fertile parts of Podolia. In the mountains, on the other hand, making land arable by means of fires followed immediately by planting, is still a procedure frequently met with. In the Polissye region burning is still frequently applied, but the two-field and three-field systems are used more frequently. On the same principle, agriculture is carried

on in the northern parts of Volhynia, Kiev and Chernihiv. In the southern parts of these districts, as well as in Podolia, Poltava and Kharkiv, the three-field system predominates. Manuring is usually confined to small plots directly adjoining the farmhouse. Here, too, however, an advance to rational rotation of crops and to the multi-field system is undeniable. In the steppe zone the method of cultivation becomes more careless and the so-called fallow-system prevails. The steppe soil is cultivated for a number of years and then left lying fallow for some time. In very recent years, however, even the steppe-peasant has had to face the hard necessity of going on to the intensive methods of cultivation.

The agricultural implements of the Ukrainian peasants have undergone a great change. The primitive wooden plough, without metal mounting, has been retained only in places, in the Polissye region and the Carpathian country, more as a relic of the fathers than as an agricultural implement. In the entire central zone of the Ukraine, the typical Ukrainian plough, made of wood, with strong iron fittings, is used. Iron ploughs are rapidly coming into use. In the southern steppe zone of the Ukraine, the peasant has by far the best implements. Iron ploughs of different kinds are used here, in imitation of the German colonists, while sowing, harvesting, and also threshing machines are found as the property of large farmers or of agricultural co-operative associations.

It is possible, then, to note a certain progress in Ukrainian agriculture. The Russian and White Russian peasant is much more badly off, but the Ukrainian peasant, too, has a long way to go in order to reach the level of even the Ukrainian large landowners. Various agricultural co-operative associations are working to raise the standard of agriculture among the Ukrainian peasantry. One of these co-operative associations has 90 branches, 1100 local

groups, and 27,000 members—the Eastern Galician "Silsky Hospodar." Such associations would, if not hindered in their development (especially by the Russian Government), become of great importance in raising the level of the agricultural industry of the Ukraine, that ancient granary of Europe.

The second cause of the sad condition of Ukrainian agriculture lies in their unsound property conditions. The foreign conquerors, who were continually attracted by the fertility of the Ukrainian land, after taking possession of the land, divided it among their upper classes. The foreign conquerors have succeeded in denationalizing the Ukrainian nobility, have succeeded even in developing the republican Cossack organization into a new class of landowners and, very largely in russifying them. Foreign rule in the Ukraine has always supported foreign ownership of land on a large scale, and the Ukrainian peasant must be satisfied with small, mediocre and widely scattered bits of land.

Now for a few corroborative figures. In the Ukrainian part of Galicia the large estates embrace 40.3% of the total area. In the Governments of Chernihiv, Poltava and Kharkiv, the proportion of peasant-owned land is still rather large (53%, 52%, 59%), because here the property of descendants of the old-time Cossacks is included. Far worse are the conditions in other parts of the Ukraine. In Volhynia the peasant-owned land constitutes only 40% of the area, in Podolia 48%, in Kiev, 46%, in Kherson 37%, in Katerinoslav 45%, in Tauria 37%, while in the Polissian Government of Minsk the peasants retain only 28% of the land.

The results of such unsound property conditions are fatal to the ever-increasing density of the peasant population. Land-famine has become chronic all thru the Ukraine. The parcelling out of the large estates which began with such fine results in Galicia a few years ago has now come to

a halt, and the Stolypin radical agrarian reform in the Russian Ukraine has thus far only slight results to show. To be sure, the amount of property of the medium landowners is decreasing, but the giant estates are not only not losing ground, but even show a steady, tho gradual, growth.

As a result of the ever increasing scarcity of land, the Ukrainian peasants are splitting up their property more and more, trying to rent as much land as possible from the large landowners, and seeking subsidiary occupations in domestic work; but a large percentage find it necessary to leave their fatherland and to seek homes in Caucasia, Turkestan, Siberia, Canada, Brazil and Argentina. And this sad fact need not amaze us. For, while the foreign colonists who settled in Southern Ukraine upon the invitation of Catherine II were given 65 hectares of land per head, the Ukrainian peasant, after the abolition of serfdom, in 1861, was given a maximum of 3½ hectares, and in many cases only 1½ hectares per head. In half a century the rural population has doubled, while the area of cultivation has not increased perceptibly at all. Thus, there existed in the Government of Poltava, as early as twenty years ago, more than 60% of peasant-farms with an area of cultivation of only 1.3 desiatins, while another four percent of estates occupied more than 5 desiatins. How can one speak of progressive farming under such property conditions? Those 60% of peasant farms resemble very closely the sort of plots occupied by cottagers or squatters. And the consequence: 62% of the emigrants who emigrated to Russian Asia in 1910 came from the Ukrainian governments, that "granary" of Russia. And not only from the thickly populated districts of Kiev or Poltava, but also from the comparatively thinly populated, very fertile districts of the Ukraine—from Kherson, Katerinoslav and Tauria.

The third reason for the sad condition of Ukrainian

agriculture, is the community ownership of land established in the Eastern Ukraine. The basis of their system, which is in vogue everywhere in Great-Russia, is that the land is not owned by the individual peasant, but by the entire community, which apportions it among its individual members. This Muscovite property system is unbearable to the Ukrainian peasant and causes him to neglect his land, since it does not really belong to him. It does not pay him at all to cultivate the ground better than his neighbor, since, in the new apportionment, the carefully improved patch may fall to someone else.

If, therefore, despite all these unfavorable conditions, the agricultural production of the Ukraine and its exports of food stuffs are very great, this fact is due, above all, to the great fertility of the Ukrainian soil and the economic policy of the large landowners, who, in spite of the frequent danger of famine in their own country, continue to export the products of their great estates beyond the borders of the land.

After these general observations, we proceed to a short survey of agriculture in the Ukraine. None of the European countries (with the exception of Russia) possesses as great an area under cultivation as the Ukraine. It ammounts to more than 45 million hectares, that is, more than 32% of the area of cultivation of European Russia, which is six times as large as the Ukraine. The proportion of the area of cultivation in the Ukraine is nearly 53% of the total area of the country. In this respect the Ukraine is surpassed only by France (56%). In Germany, the proportion is only 48.6%, in Austria 36.8%, in Hungary 43.1%, in Russia 26.2%. To be sure, the proportion of the cultivated area is very different in different districts of the Ukraine. The most agricultural land is found in the steppe and transition regions: Kherson 78%, Poltava 75%, Kursk 74%, Kharkiv 71%, Voroniz and Katerinoslav 69% each,

Podolia and Tauria 64% each, Bessarabia 61%, Kiev 57%, Chernihiv 55%. The forest regions possess much less farm land: Galicia 48%, Grodno 40%, Volhynia 37%. Minsk 24%, etc. Besides this, the farm land within each of the above mentioned regions is diversely distributed. In Galicia, for example, the area of cultivation is apportioned as follows: In Eastern Podolia 75—80%, in Western Podolia 60—75 %, in Pidhirye only 20—30%, in the Hutzul country only 10%, of the total area. Similar conditions prevail in the Bukowina, in Upper Hungary, Caucasia. In the level regions of the Ukraine these local differences are slighter.

To calculate the general agricultural production of the Ukraine is difficult, if not impossible. By combining various reports, we get, for the yearly average in the beginning of the 20th Century, a grand total of 150 million metric hundred weights. (This number, however, includes only the wheat, rye, and barley production.) In this respect, the Ukraine surpasses all the countries of Europe except Russia. Its production is greater than that of Austria, Hungary or of France, to say nothing of other European States.

Following are several figures about the harvest yield of the Central regions of the Ukraine in 1910. Volhynia produced 73.4 million puds (1 pud=16.4 kilograms), Kiev 113.4, Podolia 115.9, Kherson 188.6, Chernihiv 40, Poltava 113.6, Kharkiv 95.9, Katerinoslav 194.9, Tauria 138.3, Kuban 214.4 million puds. The total yield of the central regions of the Ukraine (without the borderlands, which also produce a great deal, as for example, parts of Kursk, Voroniz, the Don region, etc.) totalled 215 million metric hundred weights, and was, consequently, six times as great as the harvest yield of Russian Poland, and comprised 39% of the total production of European Russia and over 33% that of the entire Russian Empire. If we

consider now that the Russian Ukraine comprises only a twenty-ninth part of the gigantic Russian Empire and barely one-fourth of its population, we recognize the great importance attached to the Ukraine as the granary of Russia.

Among the species of grain grown in the Ukraine, *wheat* is without doubt of the first importance. In the Southern Ukraine wheat takes up half the area of cultivation, decreasing rapidly toward the north and west. In the Government of Kherson the wheat fields cover 51% of the cultivated surface, in Katerinoslav 50%, in Tauria and in the Don region 49%, in Bessarabia 36%, in Podolia 30%, in Kharkiv 29%, in Poltava and in Kiev 22%, in Galicia 14%, in Volhynia 11%, in Grodno 4%, in Minsk 3%, in Chernihiv only 1%. In Kiev, Podolia, Volhynia, Galicia, more winter wheat is raised; in the Southern Ukraine, more summer wheat. The mean annual yield per hectare is 10½ hl. for winter wheat and 7½ hl. for summer wheat. The mean annual yield of wheat in the first decade of the 20th Century in Russian Ukraine was 68 million metric quintals, that is, over 46% of the production of European Russia. (In Eastern Galicia it was 1.9 million q.). The chief centers of wheat production in the Ukraine are Kuban (17 million q.), Katerinoslav (12.4 million q.), Kherson (12.4 million q.), Tauria (9 million q.), Poltava (6.3 million q.), Podolia (5.8 million q.), Kharkiv (4.9 million q.), Kiev (4.2 million q.), Stavropol (3.3 million q.), and Volhynia (2.7 million q.). Wheat is one of the chief exports of the Ukraine.

*Rye* is cultivated chiefly in the northern and western districts of the Ukraine, where it is the chief grain used for breadmaking. In Chernihiv, Minsk and Grodno, rye takes up 48% of the farm land, in Volhynia 38%, in Poltava 3%, in Kharkiv 29%, in Kiev 28%, in the Don region 22%, in Katerinoslav and Podolia 19%, in Tauria 18%, in Kherson

and Galicia 17%, in Bessarabia only 7%. Rye (almost everywhere *winter rye*) yields on the average 10½ hl. per hectare. The chief districts of production are Poltava (55 million q..), Volhynia (4.9 million q.), Kiev (4.8 million q.). The total rye output of the Ukraine is as high as 42 million q., that is, over 20% of the Russian output.

*Barley* is raised mostly in the Southern Ukraine, where it takes up 28% of the farm land in Tauria, 26% in Katerinoslav, 21% in Kharkiv and Kherson, 18% in Bessarabia, 17% in the Don regions. The chief districts of production are Katerinoslav (9.2 million q.), Kherson (7.9 million q.), and Kuban (6.9 million q.) Barley is also an important export of the Southern Ukraine. In other regions of the Ukraine less barley is raised, *e. g.*, in Poltava 13%, in Polissye and in Galicia 9%. The barley production of the Russian Ukraine amounts to 49 million q., therefore 61% of the Russian production of barley.

The importance of the remaining grains is, of course, comparatively slight. *Oats* take up on the average 16% of the farm land in the Ukraine (21% in the Polissye region, 17% in Galicia, 16% in Chernihiv, 11% in Kharkiv and Poltava, 5% in Southern Ukraine). The total production is 28 million q. Kiev, Volhynia and Poltava take first rank. As a bread cereal, oats are of some importance only among the Carpathian people of the Ukraine. The Eastern Galician oats production amounts to 4.5 million q. *Spelt* is raised very seldom and then only along the western borders of the Ukraine. *Buckwheat* is of the greatest importance in the Chernihiv country (about 27% of the farm area and a yield of 0.8 million q. a year), and Kiev, Volhynia, and Poltava each produce almost as much. In other regions of the Ukraine, buckwheat is raised much less frequently (7% in Polissye, 2% in Galicia), in the southern part of the Ukraine almost none at all. *Millet* is raised chiefly in the Government of Kiev (10% of the farm-land,

2.3 million q. annual production) and Voroniz (9%). In Kharkiv and Poltava the amount of land used for millet is only 4%, in Galicia 1%. In Kherson the cultivation of the Chugara-millet has been begun. The chief region of *Indian corn* cultivation is Bessarabia, where this crop takes up 32% of the area of cultivation. Indian corn is also grown in the adjacent regions of Podolia (7%), Kherson (3%), Galicia (3%), and the Bukowina, playing an important part in feeding the population in these regions. The chief regions of corn production are Podolia (1.8 million q.), the Ukrainian part of Bessarabia and Kherson (each 1.1 million q.) and Southeastern Galicia (0.9 million q.).

Besides grains and cereals, some other species of plants are of great importance in the agricultural production of the Ukraine. The first of these is the *potato*. The fact that the yield of the potato is six or eight times that of the other plants makes it a very important staple. Yet this advantage of the potato is but little exploited in the Ukraine. Only in Galicia does the potato take up 14% of the farm-land (annual production in Eastern Galicia 38.7 million q.). Even in the Polissye region and in Chernihiv, only 6% of the farm-land consists of potato-fields, in Poltava and Kharkiv only 3%, in the Southern Ukraine barely 1%. The total production of potatoes in the Russian Ukraine is 63.2 million q. annually, therefore 22% of the production of European Russia. The large landowners use the potato for distilling alcohol (especially in Galicia), or for cattle-feed.

Various species of *beans* and *lentils* are raised everywhere in the Ukraine, but on a small scale, chiefly in kitchen-gardens. In Galicia these vegetables take up 3% of the farm-land, in Polissye and Chernihiv 2% each, in the other districts of the Ukraine still less. The culture of *forage* (clover, lucerne, fodder-turnip) is still in its infancy in the Ukraine. Only in Galicia do such plants take up more than 10% of the farm-land.

The cultivation of commercial plants stands upon a comparatively low level. Most extensive is the cultivation of *hemp* and *flax;* but it takes up only a tiny part of the general area of cultivation of the land. Flax is cultivated chiefly in the Polissye region and in Katerinoslav (3% of the farm-land). In Chernihiv, Poltava, Kharkiv, it takes up 1 to 2% of the farm-land, in Galicia 1% (together with hemp). In the Southern Ukraine a short-stemmed variety of flax, raised only for obtaining oil, is cultivated widely. Hemp takes up on the average 1% of the farm-land, only in Chernihiv as much as 4%. All the hemp products are used in home industry, while the flax products are mostly exported. Another plant grown for the sake of oil thruout the Ukraine, but especially in the eastern borderlands of the country, is the *sunflower*. *Rapeseed* is grown only by the large landowners, chiefly in Kherson, Kiev, Poltava, and Podolia. *Poppy* is cultivated everywhere in the Ukraine even by the peasants. Among the industrial plants of the Ukraine the *sugar-beet* plays a very important part. In the year 1897 Russia had 410,000 hectares of beet-fields, 330,000 hectars of this area being in the Ukraine. The total Russian production of sugar-beets was 60 million metric hundredweights, of which 50 millions, that is, five-sixths, came from the Ukraine. The most important centers of sugar-beet production lie in the Governments of Kiev, Kharkiv and Podolia, much less being produced in Volhynia, Chernihiv and Kursk. In the Austrian Ukraine sugar-beet culture is developed only in Southeastern Galicia and Northern Bukowina. Not only the large landowners, but also frequently the peasants, engage in sugar-beet culture with great profit.

Another important commercial plant of the Ukraine is *tobacco*, which takes up over 50,000 hectars of farm-land, 3000 hectares of it in Galicia. The chief districts of tobacco production are Chernihiv, Poltava, Kuban and Tauria.

Much less is produced in the Black Sea region in Podolia, Volhynia, Bessarabia, Kherson and Kharkiv. The tobacco production in Russian Ukraine in 1908 amounted to over 660,000 q., that is, 69% of the total production of Russia, in Galicia 50,000 q. Tobacco culture has a great future in the Ukraine, because the ground and the climate are wonderfully fit for it. But first the unfavorable conditions, which lie chiefly in the poor organization of the tobacco trade, must be removed.

*Hops* are raised in the Ukraine to a very slight extent. In Galicia only the large landowners engage in a little hop culture on 2300 hectars of ground. In Volhynia the Chekhic colonists have introduced the cultivation of hops. It comprises about 3000 hectares of land and yields over 16,000 q. of hops a year, that is 40% of the total Russian output of hops.

## Fruit and Vegetable Raising

*Vegetable-culture* is very slightly developed in the Ukraine. Beyond the little vegetable gardens about the houses and the melon-patches in the steppe we see no developed vegetable culture even in the neighborhood of large cities. It is worthy of mention only in the Chernihiv and Odessa regions, as well as in the old Zaporog country on the Dnieper (Oleshki, etc.). Here vegetables are harvested twice a year, in the early summer for exportation and in the fall for home use. The South Ukrainian melon plantations (*bashtani*) annually yield great masses of sweet melons, watermelons, pumpkins and cucumbers. Here there has even arisen a special class of *bashtanki*, who rent pieces of land for melon patches.

*Fruit-culture* is much more highly developed in the Ukraine. The love of the Ukrainian people for trees favors the planting of orchards. The ignorance of progressive fruit-culture, owing to illiteracy, as well as the exploitation of the fruit growers by middlemen is hindering the development of Ukrainian fruit-culture, which, nevertheless, has

a great future before it, and even now plays an important part in the economic life of the Ukraine.

The greatest amount of space is taken up by orchards in Bessarabia (40,000 hectars), where the more delicate kinds of apples, pears, plums and walnuts, almonds and apricots are raised. In Podolia the orchards of the peasants alone comprise more than 26,000 hectars. Besides apples, pears and plums, great quantities of cherries are raised here. The orchards usually lie in the deep river-valleys. The yar of the Dniester, between Khotin and Yampol, produces annually half a million metric hundredweights of fruit. From Podolia and Bessarabia over 800,000 q. of fresh fruit, 100,000 q. of dried fruit and 20,000 q. of nuts and almonds are exported annually. The most luxuriantly growing orchards are those of Tauria, which cover over 7000 hectares on the northern declivities of the Yaila Mountains. The annual production exceeds 160,000 q. of fruit and 40,000 q. of nuts. In this region the tenderest species of apples, pears and plums flourish, besides apricots (4,000 q. a year) and peaches. About the middle of May the cherries ripen here. In the middle of June the apricots; at the end of June plums and early pears; about the middle of July peaches and early apples; in August we have autumn pears and apples, and in the first half of September, the winter apples.

Beyond these districts, fruit-culture is practised on a large scale in the Kiev region and in Volhynia. Here, above all, the hardier northern species of apples and pears are raised, as well as cherries. In Kherson and Katerinoslav, too, fruit-raising flourishes; especially in the Dnieper valley, where apricots also thrive. In the Poltava country fruit-culture is still important enough, while in the districts of Kharkiv, Voroniz, Kursk and Chernihiv it is much less significant, altho we find, even here, a few centers of intensive fruit-growing; for instance, in the

vicinity of the cities of Kharkiv, Okhtirka, Bohodukhiv. In Galicia fruit-growing is not especially developed, except in Pokutia, the vicinity of Kossiv, and the Podolian yari-valleys, where (near Zalishchiki) even apricots and grapes are grown.

There is a certain connection between fruit-growing and viniculture. The northern boundary of the grape in the Ukraine, coincides approximately with the May isotherm of +16° and reaches the 49th parallel. This boundary line may be drawn from Zalishchiki, past Kamianez and Katerinoslav, to Astrakhan. In places, however, the northern boundary of the vineyards extends beyond the 50th parallel; for example, near Bilhorod, in the Government of Kursk. Thus, the entire southern part of the Ukraine may be considered a favorable vine-growing region. But vine-culture has not developed in the entire great expanse of the Southern Ukraine; it is confined to only a few centers. In Galicia the vine is cultivated only in Zalishchiki, in Russian-Podolia only in a few river-valleys. Somewhat greater is the wine-production of the old Zaporog district, where both inclines of the Dnieper valley are planted with grape-vines. In the Kherson region the vineyards cover about 7000 hectares. The most important wine-producing district of the Ukraine is Bessarabia, where the vineyards take up 75,000 hectares, that is, a third of the entire Russian wine-country, and yield over 2½ million metric hundredweights of grapes annually. From this amount usually 870,000 hl. of wine are obtained, which, despite its fine quality, is so cheap, as a result of the poor organization of the wine trade, that the barrel often costs more than its contents. Vine-growing is but slightly developed in the Don region, where 33,000 q. of grapes are obtained every year, and the familiar sparkling wines are manufactured. In the Government of Stavropol we find large vineyards only in the Kuma

and Terek valley. In Ciscaucasia, the vineyards cover about 19,000 hectars, and nearly 200,000 hl. of wine (of very good quality) are obtained annually. Grapes flourish very luxuriantly in the Black Sea region and in Tauria. Many vineyards are found in Melitopol and Berdiansk, but the most successfully flourishing vines are those of Crimea, where tender French and Spanish varieties are also cultivated. Wine-growing has become an important branch of industry for the population here. Tauria yields only 250,000 hl. of wine annually, because of the exclusive use of raw grapes for medicinal purposes.

*Bee-culture* has, since ancient times, been carried on in the Ukraine in very close connection with fruit-growing. It is very popular thruout the Ukraine, and in some districts of the country we rarely find a peasant farm without several beehives. Yet the almost fabulous wealth of honey which the Ukraine originally possessed is steadily declining. Deforestation has limited the original forest bee-culture to the Polissye only. The continued assimilation of meadows and steppes for agriculture has greatly injured the Ukrainian bee industry, and progressive bee-culture is spreading very slowly among the Ukrainians, due to the lack of education and instruction. The chief producing centers of honey in the Ukraine are Kuban (326,000 bee-hives), Poltava (305,000 bee-hives), Chernihiv (283,000 bee-hives), Kharkiv (246,000 bee-hives), Kiev (242,000 bee-hives), Volhynia and Podolia (each 206,000 bee-hives). The total production of honey of the Russian Ukraine, in 1910, amounted to 125,900 q., wax 13,700 q. (38% and 34% respectively of the total production of the Russian Empire). In Galicia, in 1880, the number of bee-hives was still as high as 300,000, in 1900 only 210,000. Nevertheless, the land produced one-half of the honey and one-eighth of the wax of the entire Austrian production (25,000 and 350 q. respectively). The damp, cool summers

of the past decades have greatly injured the Galician bee industry, but, in very recent years, progressive bee-culture has begun to develop strongly here, and to increase the honey and wax production of the land.

Silkworm-culture is very slightly developed in the Ukraine, altho the mulberry trees thrive almost everywhere in the country, and silkworm-culture requires no great outlay in money and labor. Attempts are being made in the Don region, Tauria, Bessarabia, Kherson, Katerinoslav, Kharkiv, Kiev, Poltava and Chernihiv, but the silk output is still very small. In the Government of Kiev, in 1907, barely 1,300 q. of cocoons were obtained.

## Cattle Raising

Cattle-raising thruout the Ukraine is closely joined to agriculture. Only in the Pontian steppes the remains of the originally extensive cattle industry are left today. With the prevailing shortage of land, cattle-raising is a source of industry of the greatest importance to the Ukrainian peasantry, the most important source of ready money with which to pay taxes and to invest in farm improvements. Unfortunately, the Ukrainian peasantry is only beginning to understand the importance of progressive cattle-raising and to introduce it. In Galicia, this movement has already had a good start. In the Russian Ukraine, only the large landowners (and they but rarely) are carrying on progressive agriculture. On the other hand, it should be noted that only extensive cattle-raising pays the large landowner, hence, cattle-raising by the peasants is of incomparably higher importance in the life of every cultured nation. For this reason, cattle-raising in the Ukraine gives promise of a splendid future, once it is carried on by an enlightened peasant class.

The total number of cattle in the Ukraine can hardly be estimated, even roughly. At any rate it is considerably

more than 30 million, of which approximately four million belong to the Austrian Ukraine. Compared to the adjacent countries, the Ukraine is very rich in cattle. The Russian Ukraine, which comprises not quite a sixth part of European Russia, possesses fully a third of the Russian stock of cattle; that is, about double the amount it should have according to the size of the territory. In like manner, the Austrian Ukraine is important for its exports of cattle to Western Austria and Germany.

Of all the districts of the Ukraine, the relatively smallest stock of cattle is found in Galicia, for here there are only 723 head of cattle (116 horses, 372 horned cattle, 60 sheep, 172 hogs) for each 1000 inhabitants. The proportions are greater in the Russian Ukraine. For every 100 of the population Volhynia has 19 horses, 32 steers, 18 sheep, 17 hogs. The corresponding numbers for Podolia are 16, 19, 17, 11; for Kiev 13, 18, 17, 10; for Kherson 29, 24, 16, 11; for Chernihiv 21, 25, 33, 16; for Poltava 14, 22, 27, 11; for Kharkiv 17, 27, 23, 10; for Katerinoslav 25, 26, 21, 12; for Tauria 30, 28, 61, 11; for Kuban 34, 54, 80, 21.

We shall begin our survey of the cattle industry with a consideration of *horse-raising*. The Ukrainian breed of horses is widely distributed thruout the entire Dnieper region, its Chornomoric variety in the Kuban region, its Don variety in the eastern border districts of the Ukraine. By far the greater number of the Ukraine horses, however, are a mixed breed, of small stature, and, despite great powers of endurance, not particularly strong. Of the different breeds of small horses, only the Hutzulian mountain-breed are important, because of their fine qualities. The remaining millions of small horses rather mark the low grade of horse-breeding than real value for the population, which, in proportion to its economic resources, keeps entirely too many horses. Very little is being done to raise the standards of horse-raising in the Ukraine. Breed-

ing-studs are kept up by the large landowners only for the breeding of race-horses, while nothing at all is done for the breeding of work-horses. Only in Voroniz a breed of strong draught-horses is produced (*bitiuhi*), and a little is accomplished also by the breeding-studs of Novo-Alexandrivsk (Kharkiv region) and in Yaniv (in the Kholm country). In the Austrian Ukraine the war-department takes care of the breeding of the Hutzulian breed of horses with great success.

*Horned cattle* are of much greater importance to the Ukrainian people than horses, and the breed is relatively much better. Thanks to the general distribution of the native gray breed, the addition of the red Kalmuck breed of cattle in Eastern Ukraine, and the frequent crossing with Western European breeds accomplished thru the agency of the large landowners, the governments and the agricultural organizations, cattle-breeding in the Ukraine appears much more advanced than horse-breeding. On the other hand, dairying in the Ukraine is barely in its beginnings. Only in Galicia has a dairymen's organization been formed by the Ukrainian peasants, which produce ¼ million kilograms of butter a year.

*Sheep-raising* in the Ukraine decreased considerably within the last decades of the 19th Century, as a result of Australian competition. Formerly, the Southern Ukraine was one of the most important wool producing regions of the world. The decline of the sheep-raising industry has been accelerated a great deal by the transformation of the steppes into farmland. The immense flocks of sheep which roamed the Ukrainian steppes under the care of semi-nomadic shepherds are a thing of the past. Nevertheless, about 10 million sheep can still be found in the Ukraine. The greatest part of them is raised in the Don region, the Kuban region, Tauria, Katerinoslav and Bessarabia. Just as in the other branches of live-stock-breeding,

so also in the matter of sheep-raising, the most important part is performed by the peasant. The peasants breed chiefly coarse-wooled sheep of various breeds. These sheep can graze three-fourths of the year out in the steppes. The large landowners raise far less sheep, but these belong to the fine-wooled Merino breed, the raising of which is more expensive, but also more profitable. In very recent years the peasants have at last begun to engage in breeding the fine-wooled varieties. Sheep-raising is very important in the districts of Chernihiv, Poltava and Kharkiv, where, in the year 1900, there were 3½ million sheep (3 million of which belonged to peasants). Here the greatly renowned Reshetilov breed of sheep is raised. The remaining districts of the Ukraine carry on very little sheep-raising. Only in the Carpathians is it an important branch of industry of the population. Here the coarse-wooled mountain-sheep graze in the mountain pastures, and bring almost greater profit thru their dairy products and skins than thru their wool.

Goats are found very rarely in the Ukraine, almost exclusively in the Carpathian, Yaila and Caucasus Mountains. *Hog-raising*, however, is perhaps the most important source of income of the poorer Ukrainian peasantry, and as such it is common everywhere in the Ukraine, most of all in Chernihiv, Volhynia and Kuban. Besides sty-breeding, extensive breeding is carried on in some districts. On the lower Dnieper and Dniester large droves of swine remain in the *plavni* all summer and fall. Improved breeds of English hogs (Yorkshire, Berkshire, etc.) are not common in the Ukraine and easily degenerate, while the most common breeds, the Russian, the Polish and the southern curly-haired variety, are very hard to fatten.

*Camels* are kept only in the southeastern steppes of the Ukraine (Tauria, Don region, Stavropol), *buffaloes* only in Bessarabia, *asses* and *mules* in Bessarabia and Tauria.

Having reached the end of our survey of cattle-raising in the Ukraine, we must turn to *poultry-raising*, which constitutes one of the most important sources of the money income of the peasantry. In view of the truly Spartan mode of life of our peasants, very little poultry is consumed by the breeder himself, most of it being sold to the dealers or in the cities. The balance of the production over the local consumption is so great that the entire Ukraine has become an exporting region for poultry, eggs and feathers to the other districts of Russia, to Western Austria, Germany, England, etc. From the nine governments of the Ukraine, in 1905, over 600,000 q. of eggs were exported, 90% of which went over the border. These Ukrainian governments yielded 40% of the total Russian exportation of eggs, Kharkiv alone giving 8%, Kiev 5%. If we consider the remaining Ukrainian districts of Russia, we can say, without fear of error, that all the Russian territory together that is inhabited by Ukrainians produces more than half the Russian output of eggs and poultry. Podolia alone, in 1908, sold nearly 3½ million fowl, Kharkiv (1906) 1¼ million. Galicia, about the year 1903, exported annually eggs to the value of 35 million crowns*, feathers to the value of 3 million, and poultry to the value of 1½ million, of which, at least, two-thirds must be credited to the Ukrainian part of the land.

Every farmer in the Ukraine raises live-stock. The percentage of exclusive breeders of live-stock is very small; in the Russian Ukraine, in 1897, it was hardly 0.4%.

## Mineral Production

Altho farming—agriculture and cattle-raising—must, for the time being, comprise the main source of industry of the population of the Ukraine, this blessed land does not lack other resources as well. Very great mineral resources lie in various districts of the Ukraine; the largest in the

* 1 crown (1 krone)=20 cents (U. S. A.)

Donetz Plateau, in the Carpathians, and in the Caucasus. There is little prospect, to be sure, that the Ukraine might, with the aid of its mineral resources, become an industrial country like Germany or England, yet there does exist some hope that it will soon be in a position to provide its own needs in the way of industrial products.

*Gold* is found in the Ukraine only in traces, hardly worth mentioning, in the gold-containing quartz of the *Naholni kriaz* in the Donetz Plateau. *Silver*, together with *lead*, appears much more frequently, chiefly in the Kuban and Terek regions of the Caucasus, where, in 1910, about 300,000 q. of lead and silver ore were mined (73% of the total Russian production), yielding 25.5 q. of silver (90%) and about 11,000 q. of lead (81%), and also in the Donetz region and in the Ukrainian Carpathians of the Bukowina and Northern Hungary. The amount produced outside of the Caucasus, on the other hand, is very insignificant. *Zinc* is found only in small quantities in the *Naholni kriaz* Tin, nickel, chromium and platinum are not found anywhere in the Ukraine.

The first in the series of the more important mining products of the Ukraine is *mercury*. It is obtained from the cinnabar mines of Mikitivka, in the Donetz Plateau. Here, 842,000 q. of cinnabar were mined in 1905, yielding 320,000 kilograms of mercury. Outside the Ukraine, the Russian Empire has no mercury mines worthy of mention.

*Copper ore* is found in the Donetz Plateau, in Kherson and Tauria, in the Bukowina and Marmaroşh, yet the production is comparatively small. Much greater is the copper production of the Caucasus, where, in 1910, about 2,500,000 q. of copper ore (35% of the Russian production) and 81,000 q. of copper (31%) were gained.

Much more important is the manganese production of the Ukraine. Manganese ores are gained chiefly from the oligocene străta of the Nikopol region (on the lower Dnieper),

and in Eastern Podolia. The production for the year 1907 amounted to 3,245,000 q., or 32% of the total Russian output and about one-sixth of the output of the world.

But all the remaining metal resources of the Ukraine disappear, as it were, beside the enormous wealth of iron of the land. Iron ores are found in great quantities in very many places in the Ukraine; many deposits have not been sufficiently explored to make exploitation seem advisable, and many, for various reasons, are not being exploited. The iron production of the Ukraine is consequently limited to a few centers, but in these it is of very great importance. The most important center of iron mining is *Krivi Rih* (Government of Kherson) and vicinity. The annual production here (1903—1904) amounted to 26¼ million metric hundredweights. The entire supply of iron ore at *Krivi Rih* is estimated at 870 million metric hundredweights, but in the immediate vicinity there lie much larger untouched deposits. The iron content of the ores (red and brown iron ore) is 60—75%.

Other iron ore deposits of the Ukraine are of much less significance. Only in the Donetz Plateau and in the vicinity of Kerch are iron ores still mined in considerable quantities. The iron ore deposits of the Caucasus, the brown iron ores and swamp-ores of Volhynia, of the western Kiev country and of the Polissye, are not exploited, and in in the Ukrainian Carpathians of the Bukowina and Northeastern Hungary, iron mining is dying out.

The iron production of the Russian Ukraine in 1907 amounted to 39.9 million q., that is, 73% of the total Russian production. The figures for the years following are: 1908—40.3 million q.=74%; 1909—39 million q.=74%; 1910—43.4 million q.=74%; 1911—51.1 million q.=72%. These figures show clearly enough what a wealth of iron the Ukraine possesses, and what part the country plays as the chief producer of iron for Russia.

We now come to the second group of mineral resources, —the mineral *fuels*. In this respect, too, the Ukraine is richly supplied. The Ukraine possesses but one *coal-field in the Donetz Plateau*, but this coal-field is one of the largest and richest in Europe. Its surface area is 23,000 square kilometers, the annual production (1911) 203 million metric hundredweights, that is, 70% of the total production of coal of the entire Russian Empire. Then, the coal-district on the Donetz is very rich in anthracite. In 1911, approximately 31 million metric hundredweights of anthracite were gained here (98.5% of the total Russian production). For coke-making, practically the only coal that can be used in Russia is the Donetz coal. In 1911, 33.7 million metric hundredweights of coke was gained in the Donetz region; in all the remaining coal districts of the Russian Empire, barely 13,600 q.

From these figures we see clearly that the Ukraine, despite its general agrarian character, possesses great supplies of coal, that indispensable aid in modern industry. To be sure, the Ukraine takes only seventh rank in the world's coal production (being preceded by the United States, Great Britain, Germany, Austria-Hungary, France and Belgium) yet it is, nevertheless, not to be despised as a producing district. When we consider the backward state of material culture in Russia as a whole, the youth of the Ukrainian coal-mining industry, and the centripetal railway tariff policy of the Russian Government, we must come to realize that, with better conditions, a brilliant future awaits the Ukrainian coal industry.

The *brown-coal* deposits of the Ukraine are as yet but slightly explored, and, in themselves, much less important than the *pit-coal* deposits. A brown-coal field of 5000 square kilometers is part of the tertiary strata of the Dnieper Plateau (Kiev-Yelisavet coal region). Toward the end of the past century an annual average of 82,000 q.

of brown-coal was mined here (Katerinopol, Zuraska). Just as unimportant is the brown-coal production in the Caucasian foothills (Batalpashinsk). In the Carpathian foothill country and in the Rostoch, in 1901, over 1 million metric hundredweights of brown-coal was mined; in 1905 barely one-half that amount. Notwithstanding, some importance must be attached to the brown-coal industry in the Ukraine for the future.

Large *peat deposits* are widely distributed in the Polissye, in Volhynia, Podlakhia, Galicia, Kiev, Podolia, etc., but extremely little is done in the way of rational exploitation. Only in the Polissye and in Galicia (40 places in 1905) is peat cut on a large scale, altho its importance, especially for the districts of the Ukraine, which have few forests, should not be underestimated.

In petroleum and ozokerite the Ukraine is the richest land in Europe. Along the great bend of the Carpathians, beginning at the Poprad Pass, one petroleum district crowds close upon the next. They lie almost exclusively in the Ukrainian territory of Galicia, *e. g.*, Borislav and Tustanovichi, which, in 1907, yielded about 86% of the Galician petroleum output, in the Ukrainian District of Drohobich. The Galician petroleum production in 1911 amounted to 14.9 million metric hundredweights—(in 1907 even 17.5 million metric hundredweights), and takes third rank in the world's production (being outranked by Russian Caucasia and the United States). Considerable naphtha fields are also found in the Ukrainian sub-Caucasian country, where, in 1910, near Hrosni and Maikop, 12.6 million metric hundredweights of petroleum were gained. From the eastern tip of Crimea and the Taman peninsula to the Caspian Sea immense treasures of petroleum are hidden.

The only place in the world where ozokerite is found in large quantities is Eastern Galicia. In 1885 Borislav yielded 123,000 q. of this rare mineral. The unexampled

wastefulness in mining accounts for the fact that, in 1911, Borislav together with other small sub-Carpathian mines (Dsviniach, Starunia, Truskavetz) yielded barely 19,400 q. of ozokerite. Ozokerite is also found in the Ukrainian sub-Caucasus country, but in inconsiderable quantities.

Quite as important as the iron, coal and petroleum deposits of the Ukraine, are its salt deposits. The Ukraine has three districts of salt-production—the Carpathian foothills, the Donetz Plateau, and the Pontian-Caspian salt-lake and liman region. The sub-Carpathian salt-mines and salt-works of Galicia (Latzke, Drohobich, Stebnik, Bolekhiv, Dolina, Kalush, Delatin, Lanchin, Kossiv) all lie within Ukrainian national territory, with the single exception of Vielichka and Bokhnia. In 1911 Galicia produced about 1,440,000 q. of rock salt, most of which, to be sure, must be credited to Vielichka and Bokhnia. On the other hand, the 1,690,000 q. of manufactured salt and brine were produced mainly in the Ukrainian part of Galicia. In 1908 the salt production of the Ukrainian part of Galicia amounted to only 540,000 q. In the Donetz region there are immense deposits of rock-salt in the vicinity of Bakhmut (*e. g.*, Branzivka with a deposit of pure rock-salt 100 meters deep). Here, in 1911, about 4.9 million metric hundredweights of rock-salt were mined (86% of the total Russian rock-salt production) and the rich salt-springs and salt-lakes exploited besides. In the Ponto-Caspian region first place in held by the salt-lakes and limans of Crimea, then follow the limans of the Kherson region (Knyalnik, etc.), the Manich lakes, etc. The amount produced vacillates between 3⅓ and 5¾ million metric hundredweights a year, and depends largely on the degree of dryness and heat of the summer season. The total salt production of the Russian Ukraine in 1907 attained 10 million metric hundredweights, or 53% of the production of the entire Russian Empire.

*Nitre salts* are found in great quantites only in the Ukrainian sub-Carpathian country. In 1901 the amount produced was about 179,000 q.; in the year of 1908 it decreased to 121,000 q.

Besides the abovementioned most important treasures of the soil, minerals less important, but yet noteworthy, are found in the Ukraine. In Podolia and the adjoining border strips of Bessarabia there lie some rich deposits of phosphorites (70—75% phosphoric acid), out of which, in 1907, over 114,000 q. (72% of the total Russian production) were mined. In the districts of Katerinoslav, Kherson, Poltava, Chernihiv, Kiev, Volhynia, in 1907, over 216,000 q. of *kaolin* were mined. Outside of the Ukraine no kaolin is found in Russia. Good *pottery clays* are found thruout the Ukraine, mostly around Kiev, Chernihiv and Poltava. *Fireproof clays* occur in the Donetz Plateau, *slate* in the Zaporoze (Katerinoslav), *lithographic* stone in Podolia (near Kamianez and Mohiliv), *graphite* (in inconsiderable quantities, to be sure) in Volhynia, on the Sluch River, near Krivi Rih (Kherson), in the districts of Kiev and Katerinoslav, *mineral paints* near Lissichansk (Donetz region), Krivi Rih, and Yelisavet (Kherson), Stari Oskol (Kursk). *Sulphur* is obtained on the upper course of the Kuban River, *pumice stone* in the Caucasus, *rotten-stone* near Svenihorodka (Kiev). *Mill-stones* are obtained in many places, the best variety near Hlukhiv (Chernihiv), *whetstones* especially in the Poltava region and in the Devonian region of Galician-Podolia (Terebovla). *Chalk* is widely distributed in Podolia, Volhynia and Kharkiv, *gypsum* in Podolia and Pokutia (beautiful alabasters), as well as in the Donetz region. Building-stones, lime, sand, loam are found everywhere in the Ukraine and are of good quality. The most fit for masonry work are the devonian sandstone of Podolia, the granite gneisses of the Dnieper Plateau, and the old eruptive formations of Volhynia.

From this short survey of the mineral resources of the Ukraine, we perceive that the Ukraine, altho in this respect it does not compare with the countries of Western and Central Europe, yet does produce a great deal, and after a thoro change in the political and cultural conditions, should be able to occupy an important place in the world's production of mineral wealth. At present the Ukrainian people contributes only the poorly-paid labor, while the profit falls to the foreign rulers.

## Industry

The industry of the Ukraine is now in an important stage of transition. The originally very important home industries which, until recently, satisfied all the needs of the peasantry, cannot endure the competition with the factory system of large-scale industry, which is penetrating more and more deeply into those regions of the Ukraine that lie farthest from the highways of the world's trade. Home industry is declining irresistibly, factory industry is developing more and more, and, altho the latter is still young and is retarded, in the textile branches, by the centralization of industry at Moscow, still the Ukraine (especially the southern part) is on the way to becoming the most important industrial district of all Russia.

*Ukrainian home industry* is just as old and of as high a grade as all the popular culture of the Ukrainians—this typical primitive agricultural people. The products of Ukrainian home industry are characterized above all by their great solidity and durability. Their distinguishing feature is in the original ornamentation on all objects, even those destined for every-day use, noticeable particularly in the products of the textile, wood-carving and pottery industries. Anyone who knows Ukrainian home industry is overcome by a sad feeling when he perceives that this industry, which may really be called a fine art, will

soon be a thing of the past. The foreign rulers of the Ukraine are hostile, or at best indifferent, to Ukrainian home industry, and all efforts of the Ukrainians to promote their very vital native home industry are hindered at every turn. The middlemen ruthlessly exploit the artisan, whose earnings are a mere pittance, insufficient even for the contented Ukrainian. More and more of those who work at a trade are turning their backs upon their thankless occupations, if they can only find a means of subsistence at something else.

The most important branch of Ukrainian home industry is *weaving*. It is not confined only to the weaving of coarse, very durable kinds of linen and cloth; for very fine, sometimes really artistically ornamented tablecloths, towels and handkerchiefs, fine woolens, decorative fabrics with inwoven patterns, gold and silver thread, carpets and tapestries, too, come out of the primitively equipped workshops of the Ukrainian weavers. Under very difficult working conditions, with the most primitive means, genuine works of art are frequently created. For all that, the artistic weaver must yield place to factory goods, even in the Ukraine, and the home weaving industry is surely hurrying toward extinction.

Yet, to this day, thanks to the persistence of the people in preserving their national costume, the weaving industry is still so widespread thruout the Ukraine that there is hardly a hamlet where there are not some weavers by trade, or at least such persons as carry on weaving as an avocation. Home weaving is at its height in the districts of Poltava, where it occupies 20,000 families (1902), Chernihiv and Kharkiv. Its chief centers are Krolevetz and vicinity, Sinkiv, Mirhorod, Zolotonosha (wool-weaving). In Galicia, the entire Ukrainian Pidhirye is famous for its home weaving industry; in the mountains it is the neighborhood of Kossiv, in the low country the districts

of Horodok, Komarno, Halich, Busk, etc., which are important in this connection. The most beautiful carpets and tapestries, worked in colors, come from the districts of Mirhorod and Sinkiv (Poltava), Olhopol, Balta, Yampol, Bratzlav (Podolia), Sbaraz, Buchach, Kossiv (Eastern Galicia).

*Tailoring* is nowhere developed to large proportions, altho no place, not even the smallest village, is without it. In Poltava, tailoring and cap-making occupies over 10,000 families.

*Rope-making* is very common thruout the Ukraine, mostly in the districts of Poltava, Kiev (Lissianka) and in Galicia (Radimno). Nets are made in the district of Lokhvitza (Poltava) and Oster (Chernihiv) on a large scale.

After the textile industry comes the *wood-working industry*. It is common, everywhere in the Ukraine, the steppe country alone excepted. Almost every Ukrainian peasant of the Carpathian Mountains, of the Polissye, Volhynia, Kiev, Chernihiv, knows the *carpenter trade*. The best carpenters are the Hutzulians, who, independently, without drawn plans, build churches of fine style, even for the most distant villages of the low country.

*Ship-building* is carried on chiefly in the Polissye (Mosir, Petrikiv, Balazevichi on the Pripet, and particularly Davidhorodok on the Horin). On the Dnieper River, ships are built at Horodnia, small sea-vessels in Nikopol, Oleshki, Hola Pristan, Kherson; on the Don in Osiv (Azof). On the Dniester, river-ships are built in Zuravno, Halich, Zvanetz, Mohiliv, Yampol.

*Cabinet-making*, altho in general but slightly developed, still supplies the demand of the peasantry and the common city-dwellers. Artistic cabinet-making is carried on in the Hutzul country (Kossiv, Yavoriv, Richka, Viznitza), where, besides furniture, various kinds of woodwork,

decorated with artistic carvings and with the beautifully conventionalized specifically Hutzulian bead and brass-wire ornaments are produced, *e. g.*, canes, boxes, picture-frames, etc. The furniture industry is common in the District of Cherkassia (Kiev) and in the entire Poltava country. Here, too, beautiful and durable wooden chests are made. Wooden spoons are produced in the districts of Poltava (Kalaidintzi), Kiev (Chornobil, Hornostapol), in the Hutzul country (Porohy, Yavoriv), in the Rostoche region (Yavoriv, Vishenka), and smoking-pipes of wood in the Poltava region (Velika Pavlivka).

*Cooperage* and the making of wooden vessels is common everywhere, but it is most extensive in the districts of Poltava (3,700 families), Kharkiv (Okhtirka, Kotelva), Polissye (Mosir), Kiev (District of Radomishl), Chernihiv, Volhynia and the Hutzul country.

*Wagon-making* and the making of sleds and wooden agricultural implements has its chief center in the Poltava country, where it occupies over 2400 families (Districts of Sinikiv, Lubni, Hadyach). In the Kharkiv country this industry is important about Starobilsk, Bohodukhiv, Isium, Kupiansk, as well. In Ardon (Government of Chernihiv) beautiful carriages are produced and in Tarashcha (Government of Kiev) the world-renowned *tarantas*.

The shingle industry, charcoal-burning, pitch and potash-making are met with only in the Carpathians and in the Polissye region. Yet, not so long ago, these comprised one of the most important branches of industry of the forest-dwellers. *Basket-weaving* is especially developed in the Poltava region (about 1000 families, chiefly in the Districts of Lokhvizia and Kupiansk), to some degree also in Podolia (Districts of Litin and Vinitza), Kherson, Kiev, Polissye about Mosir. Sieves are made everywhere the wood industry is established. Bast shoes are made only in the Polissye region.

Among the branches of industry in which *mineral substances* are used, *pottery* takes first rank. Thanks to great deposits of splendid pottery clay, the Ukrainian pottery industry developed very early and now stands upon a very high plane. Its products usually have fine form and beautiful ornamentation. Pottery is best developed in the Poltava region, especially in the Districts of Mirhorod, Sinkiv (well-known center of Oposhnia), Romen and Lokhivizia. In the Chernihiv country pottery is almost as important, especially in the vicinity of Horodnia, Krolevetz, Hlukhiv (Poloshki and Novhorod Siversky). In the Kharkiv region we find large pottery works in the regions of Valki, Lebedin, Okhtirka, Bohodukhiv, Isium; in the Kiev country about Chihirin, Uman, Cherkassia, Svenihorodka, Kaniv, in Podolia about Mohiliv, Ushitza, Yampol, and Letichiv. In Galicia the Rostoche region (Potilich, Hlinsko, etc.), Podolia (Chortkiv, Borshchiv, Kopichintzi, etc.), and especially the Hutzul country (Kolomia, Kossiv, Pistin, Kuti) are renowned for pottery products. In other regions of the Ukraine pottery is less developed.

The brick-making industry is actively growing all over the Ukraine, and the introduction of tile-covered brick buildings has led to the formation of numerous peasant organizations, for the purpose of making these building-materials.

The *stone-cutting industry* is carried on on a large scale only in the region of Odessa, Olexandrivsk (Kamishevakha) and Bakhmut.

The *metal-working industry* is, in general, not highly advanced. Only the blacksmith trade is carried on everywhere and shows a fine development, especially in the Southern Ukraine. In the village smithies in Kherson, Katerinoslav and Tauria, even complicated agricultural machines are often made. The production of iron ploughs

has for its centers the districts of Starobilsk (the village of Bilovodsk produces on the average 3½ thousand ploughs a year), Isium and Valki of the Kharkiv country, in the Chernihiv country (districts of Starodub and Sossnitza), in the Poltava country (Zolotonosha and vicinity). Artistic brass-work is made by the Hutzuls of the Kossiv region (Brusturi, Yavoriv, etc.).

The utilization of *animal raw-materials* plays an important part in the home industry of the Ukraine. Sausage-makers are found in all the towns of the Ukraine, especially those of the left half, and their products enjoy a good reputation, even beyond the borders of the land. *Tanning and fur-manufacturing* flourish in the Ukraine. Ukrainian workmen have had no small share in earning world-renown for the Russian leather industry. The chief centers of this home industry lie in the districts of Chernihiv (in the regions of Chernihiv, Koseletz, Krolevetz), Poltava (about Sinkiv, Poltava, Reshetilivka with its famous furriery, Pereyaslav, Kobeliaki), Kharkiv (about Okhtirka, Valki, Isium, Sumi). In the Government of Voroniz, the village of Buturlinivka is noted for its leather industry. *Shoemaking* engages over 9000 families in Poltava (districts of Sinkiv, Kobeliaki, Romen, Konstantinohrad, etc.). In the region of Kharkiv, the towns of Okhtirka and Kotelva are the main centers of the shoemaking industry, in the Chernihiv country the regions of Novosibkiv, Borsna and Oster. In the region of Voroniz (districts of Bobrivsk, Biriuch, Valuiki) there are over 12,000 shoemakers. In the Ukrainian part of Kursk the chief centers are the districts of Sudza (5000 shoemakers, 3000 of them in Miropilia alone) and Hraivoron. In Galicia we find a strongly developed shoemaking and tanning industry in Horodok, Kulikiv, Busk, Uhniv, Stari Sambir, Ribotichi, Nadvirna, Buchach, Potik, etc.

The *horn industry*, especially the making of horn combs,

appears in Mirhorod and Sinkiv, in Kharkiv and about Sumi.

Of the numerous other branches of home industry in the Ukraine the organized (guild) painters of sacred pictures, of whom there are over 300 families in the Poltava region, may be mentioned in passing.

So much for home industry. The *factory industry* of the Ukraine is still in its infancy. Notwithstanding, it is already producing so much, despite its youth, that Southern Ukraine, in particular, is on the way to becoming the most important industrial center of all Russia. Large-scale production in the Ukraine is carried on almost exclusively by foreign (Russian, Jewish, English, French and Belgian) capitalists—the Ukrainians contribute only the poorly-paid labor. Ukrainian large-scale industry must wage a hard battle against the economic policy of the Russian Government, which aims to stop the declining preponderance of the Moscow and St. Petersburg centers of industry, and to prevent the industrial rise of the south.

The total value of the industrial output of the Russian Ukraine, in 1908, was approximately 870 million rubles, or 19% of the total Russian large-scale production. The production of the Austrian Ukraine amounts to not even one-tenth of this amount. The main centers of large-scale production are Katerinoslav (166.2 million rubles), Kiev (143.5), Kherson (127.5), and Kharkiv (98.7). Ukrainian large-scale industry concerns itself chiefly with the manufacturing of the mineral products of the land and the preparation of foods. The textile industry is artificially suppressed in the interests of the Central Russian industrial districts.

*The cotton industry* is confined to only a few small factories in the Don region (Rostiv, Nakhichevan) and Katerinoslav (Pavlokichkas). The *woolen industry* is less limited (Chernihiv country, especially Klinzi, then

Kharkiv, Kiev, the Don region, Volhynia). The *linen and hemp industry* is well developed only in the Chernihiv country (Pochep, Mhlin, Starodub, Novosibkiv) and in Kherson (Odessa) jute factories are also found. The clothing industry is worthy of mention only in Kherson and the larger cities of Eastern Galicia.

Of the many branches of the food industry, the first to be mentioned is the *manufacture of sugar*. The sugar refineries of the Ukraine, more than 200 in number (most of them in the territories of Kiev, Kharkiv, Podolia, Kherson), produce annually (1904) over 6.6 million metric hundredweights of raw sugar and 3.9 metric hundredweights of refined sugar. These figures represent 76% and 68% respectively of the total Russian output. It is remarkable that in the Austrian Ukraine, where the sugar industry has the finest possibilities of expanding, it is entirely undeveloped (only two factories). The *milling industry*, which, in general, is carried on chiefly in small water and wind-mills, possesses also some large mills operated by steam (Kharkiv, Kiev, Poltava, Kreminchuk, Odessa, Mikolaiv, Melitopol, Lviv, Brody, Ternopil, Stanislaviv, Kolomia, etc.). Another important industry is *alcohol-distillation*, which is well advanced in all parts of the Ukraine, but particularly in Russian and Galician Podolia (Galicia has 800 stills), Kharkiv and Kiev. The *beer-brewing industry* is but slightly developed, and the only districts in which it yields a product of some quality are Galicia and the Bukowina. *Mead brewing*, also a common industry, is carried on on a large scale only in the Kharkiv country and in Eastern Galicia. *Oil-pressing* is important in the territories of Kherson (Odessa), Kiev, Chernihiv (Pochep, Novosibkiv), in Kharkiv and in Kreminchuk. The important *tobacco industry* is carried on to a considerable degree in 100 factories in the Russian Ukraine (Kiev, Kharkiv, Odessa, Zitomir, Poltava, Kreminchuk, Romen, Kater-

inoslav, Mikolaiv, etc.) as well as in three government factories in Galicia (Vinniki, Monastiriska and Zabolotiv).

The *lumber industry* embraces large saw-mills in the Carpathian mountain districts of Galicia, the Bukowina and Northeastern Hungary, as well as long the Pripet and Dnieper Rivers (Mosir, Kreminchuk, Katerinoslav, Kherson, etc.,). The cork industry is established in Odessa, the *paper industry* in Rostiv, Odessa, Kharkiv, Poltava.

The most important branch of Ukrainian large-scale industry is the *metal-industry*. The Ukrainian iron industry, despite its youth, has rapidly surpassed the Polish, Moscow and Ural industry, and would be even more advanced if the economic policy of the Russian Government had not taken measures for the protection of the Moscow and Ural industry from the industrial competition of the Ukraine. Hence, the Ukrainian metal industry must furnish chiefly semi-manufactured goods, which are afterwards worked into finished goods in the center of the Empire.

In 1911, there were obtained in the Ukraine, 24,625,000 q. of *cast iron*, that is, 67.4% of the total Russian production; in 1912 the percentage is said to have reached 70%, while the rest, 30%, is accredited to Poland, Great-Russia and Russian-Asia. In 1911 the Ukraine produced 18.8 metric hundredweights (55.6% of the total Russian production) of *wrought iron and steel*, and in the year 1912, it attained the same percentage. The significance of these figures is at once apparent.

The *iron works* of the Ukraine lie chiefly near Krivi Rih, in Katerinoslav and vicinity, Olexandrivsk, the Donetz Plateau and the adjacent districts (Yusivka, Hrushivka, Tahanroh, Mariupol, Kerch, etc.). The nail and wire industry has its center in Katerinoslav, machine-manufacturing in Katerinoslav, Kiev, Kharkiv, Yelisavet, Odessa, Olexandrivsk, Mikolaiv and Berdiansk. The

*iron steamship building* industry has its seat in Rostiv and Mikolaiv. In Galicia we find only a very small iron industry, and at best a few railway supplies, factories and workshops are worthy of mention, *e. g.*, those in Sianik (car factory), New Sandetz and Lemberg.

Of the other branches of industry which manufacture mineral products, the *petroleum refineries* must be mentioned above all, particularly those of the Carpathian foothill country (Horlitzi, Drohobich, Kolomia) and at the foot of the Caucasus (Hrosni). The factory industry of *pottery* is carried on in Lviv and Kharkiv; *porcelain and chinaware* manufacture in the Kharkiv region (Budi, Slaviansk) and in Odessa; *cement manufacture* in the Black Sea region, in Odessa and in the Bukowina; *brick and tile manufacture* in all the large cities of the Ukraine. *Glass manufacture*, once very extensive in the forest regions of the Western Ukraine (Rostoche, Volhynia), is now confined to the neighborhood of Kharkiv, Horodnia and Bakhmut. Of the different branches of the chemical industry, the *manufacture of matches* is important; its seat is in the Chernihiv country near Novosibkiv, and in the Galician sub-Carpathian country (Striy, Skole, Bolekhiv, etc.).

This does not exhaust the branches of industry of the Ukraine, but, because of their comparative insignificance, we must desist from describing them. Having now come to the end of our presentation of Ukrainian industry, we have still to consider what percentage of Ukrainians engage in industrial pursuits. According to official Russian estimates of the year 1897, the percentage is barely 5% (in Galicia, according to Buzek's biassed calculation, 1.4%). The smallness of the figures would surprise us if we did not know how the Russian and Polish nationality "make" their statistics; nevertheless, it cannot be denied that the Ukrainian people still engage too little in industry. Among the Ukrainians who seek their subsistence in industry,

the greatest number (14%) engage in the making of clothing; then follow, in order, the building, metal, lumber and food industries, linen-weaving and pottery.

## Trade and Commerce

The mercantile movement in the Ukraine, as, in fact, in all of Eastern Europe, is comparatively slight. To give an exact picture of Ukrainian commerce is much more difficult than to describe its agricultural and industrial production. The great exchanges of goods in the interior, the commercial relations of the Ukraine with the other districts of Russia and Austria-Hungary, its part in the export trade of these states,—all this matter awaits working up on the part of competent economists and geographers.

The Ukrainian people take but little part in the commercial activity of their country; the Ukrainian peasant simply considers trade an occupation very little in accord with the rank of a landed proprietor, and the middle class has only begun in the last decades to recover from the suppression of centuries. Hence, Ukrainian commerce lies almost wholly in the hands of the foreign races—the Russians, Jews, Armenians and Greeks.

The causes of this condition are usually sought and found by the foreign (Russian and Polish) "standard-bearers of culture" in the indifference and incapacity for culture of the Ukrainians. This explanation, however, can be objected to when we recall the great commercial importance of the ancient Kingdoms of Kiev and Halich, as well as the long perseverance of the Ukrainian trade down into the 16th Century, despite its systematic suppression by the Polish Government. Naturally, the five centuries of Tatar invasion caused severe injuries to Ukrainian trade. And when the commercial activity of the Ukraine of the hetmans began to flourish in the 17th and 18th Centuries, it was systematically suppressed by the Russian

Government, following the ill-fated rebellion of Mazeppa. Then we must consider the difficulties of competition with the Russians, a very talented commercial race, with the Jews, the Armenians and the Greeks. Most keenly, however, the calamitous lack of education is being felt. Wherever the education of the people is more advanced, as, for example, in Eastern Galicia, there is a revival of the commercial spirit in the Ukrainians. The Galician Ukrainians have thousands of shops, large commercial co-operative organizations (*Narodna Torhovla*, with seventeen branch warehouses and several hundred shops, *Soyuz tohorvelnick spilok*, *Soyuz zbutu khudobi*, etc.), with the large annual turnover (large for Galician conditions) of 25 million crowns. The enlightened peasantry of Sinevidsko and vicinity (Boiko country) carries on an active fruit-trade far beyond the Austrian borders. Even in the Russian Ukraine trade is coming to life in all places. The co-operative movement has taken such a bound in advance, in spite of the frightful illiteracy, that in 1912 there were over 2500 such organizations, while all of Russia (including the Ukraine) had 5260, and Poland only 920. From these facts we may safely conclude that, with the elevation of the grade of culture, the former commercial spirit of the Ukraine is reawakening. To be sure, the sturdy, upright nature of the Ukrainian, which abhors every form of dishonesty, will not lend to this new commercial spirit a world-conquering character, but it will, on the other hand, increase the influence of the Ukrainian merchant in the commercial world.

The present condition of commerce in the Ukraine is still very primitive; first, because of the generally low grade of culture; second, because of the very primitive traffic conditions of Eastern Europe.

The first mark of the primitive condition is probably the existence of countless annual fairs in the Ukraine—a

relic of medieval trade conditions. The number of annual fairs in the Russian Ukraine exceeds 4000, altho it is far out of proportion to the great number of annual fairs in Great Russia. But out of twenty-two grand annual fairs of Russia, eleven fall to the Ukrainian territory—four in Kharkiv, two in Romny, one in Poltava, Kursk, Kolevez, Yelisavet and Sumy, respectively. In addition, there are the once famous Kiev "kontrakti" (now declining), and the smaller annual fairs in Berdichiv, Zitomir, Dubno, etc. The greatest exchanges of goods take place in the Yordan fair in Kharkiv (January 20th), and the Elias fair (August 2nd) in Poltava. Here the wholesale dealers sell their goods to the retailers (*Ofenyi*—Russians from the Governments of Vladimir and Slobozani—Russian sectarians, colonists from the Chernihiv country, Jewish retailers who sell in the right half of the Ukraine), who buy or supplement their stock of goods during the annual fairs. In these wholesale transactions, the so-called *prassoli* —Russian barterers—also engage, dealers who travel all year thru the villages of the Ukraine, exchange the wool, bristles and flax of the peasants for hardware, and sell the collected raw materials to the wholesalers. In this annual fair system, the Ukrainians have, until recently, played an important part as paid drivers, who drove the goods on their oxcarts from fair to fair. These drivers at one time formed a sort of class of their own—the "chumaki"—and even engaged independently in the trading of the Crimean salt and the dried fish of the Sea of Azof. The railroads have put an end to the former importance of the *chumaki*, yet the scanty length of the Ukrainian railway system prevents this carting industry from disappearing altogether. In the eighties of the past century there were counted in the districts of Poltava, Kharkiv and Chernihiv, 210,000 *chumaks*; in the year 1897, in Kherson, Katerinoslav, Tauria and Don, about 100,000 of these hired drivers.

The fair system of Ukrainian trade is carried on not only by means of great annual fairs, which, by the way, are decreasing in importance year by year, but also by means of an enormous number of smaller annual fairs in the cities, towns, and even villages of the Russian Ukraine, which take care of the retail trade. In the Austrian Ukraine the annual fairs (as for instance, the once famous fairs of Tarnopol, Ulashkivtzi, Czernowitz) have lost all significance since the modernization of the country's commerce.

World-commerce has, until very recently, left the Ukraine almost untouched. This is one of the reasons why the primitive forms of commerce were able to last so long in the Ukraine. Until recently, world-commerce has taken the Ukraine merely for a producing and exporting country of raw materials, and left the supplying of local demands to the traditional forms of trade. Only within the last decades has the modern commercial organization begun slowly to take in the Ukraine. The exchanges in Kiev, Kharkiv, Odessa, Kreminchuk, Mikolaiv, Tahanroh, Rostiv, the chambers of commerce in Lviv and Brodi, are organizing the export of raw materials from the Ukraine, and the flooding of the country with the products of foreign industry is becoming more and more intensive.

In spite of all we have mentioned, the significance of the Ukraine in the internal commerce of Russia and in world-trade is very great. The natural resources of the country, its situation on the threshold of Asia and the Mediterranean world, its property of being a direct hinterland of the Black Sea, give to the Ukraine a commercial importance with which that of any other individual district of European Russia, the Baltic lands and Poland not excepted, can never compare.

In the internal commerce of Russia, the Ukraine figures, first of all, as purveyor of foodstuffs, and in Austria-Hungary the Austrian Ukraine plays the same part on a small

scale. To represent these relations in figures encounters great difficulties, and the figures can be only approximate. In 1895 the Ukraine exported over 1.5 million metric hundredweights of grain to Lithuania and White Russia, about 1.7 million metric hundredweights to Poland, and about 0.9 million metric hundredweights to Central Russia. In 1905, two Ukrainian districts alone, Poltava and Kharkiv, exported over 0.7 metric hundredweights of grain to Central Russia. These figures must be much greater today. And the grain exportation of the Austrian Ukraine to the interior of Austria must be relatively as great. As a matter of fact, Galicia produces one-third of the total Austrian output of oats and wheat, and almost half the output of potatoes.

Quite as important is the Ukraine's exportation of live-stock. In the years 1902—1904, the Ukraine exported 80,000 head of cattle to Central Russia, and the part played by Galicia as purveyor of live-stock for slaughter is well-known. Equally important is the exportation of small cattle, poultry, eggs and butter. The exportation of wool from the Southern Ukraine plays an important part in the internal commerce of Russia. The Polissye, Carpathian and Caucasus regions furnish great quantities of lumber for exportation. The mineral products of the Ukraine are used for the greater part outside the country—Caucasian and Carpathian petroleum, the iron ore of Krivi Rih, the salt, the manganese, the coal of the Donetz Plateau. Of the entire yield of coal of the Donetz basin in 1905, barely one-third was used up in the factories of this region; the other two-thirds were to serve the advancement of Central Russian industry. All these products are the object of an active export trade.

In comparison with the exports, the imports of the Ukraine cannot be very large. The imports embrace, almost exclusively, products of foreign manufacturing.

In view of the general poverty and the very limited wants of the Ukrainian peasantry, these imports must be small, since home industry still covers the greatest part of the demand.

The part of the Ukraine in the external commerce of the Russian State is very important, while the Austrian Ukraine plays a very subordinate part in this respect. The ten central regions of the Ukraine furnish over 60% of the total grain export of Russia. In the customs districts of the Ukrainian part of the western border of Russia, 28.6 million rubles' worth of goods was exported, 14.3 million rubles imported. The customs districts of the Pontian and Azof coast within the borders of the Ukraine passed 245 million rubles in exports, 64.8 million rubles in imports. Over the borders of Russian Ukraine passed 33% of the Russian exportation and only 11% of the importation. This shows us how much the Ukraine contributes to the balance of trade in favor of Russia.

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*Traffic* in the Ukraine is very slightly developed. Altho the natural conditions for traffic are very favorable, the historical fortunes of the country took such a course that we cannot wonder at the present state of intercourse. The Ukraine was for a long time under the domination of Poland, which never cared for the condition of the roads; then the country fell under the rule of Russia, which to this day stands upon a very low level as far as traffic conditions are concerned. The Austrian Ukraine has the greatest number and the best roads, but they are found especially in Bukowina and Northern Hungary. For in Galicia, where most of the roads are under the management of the autonomous Polish authorities, the condition of the roads is sad enough.

The overwhelming majority of Ukrainian highways are unpaved. All that the Russian geographer, Krassnov,

has said in general about the highways of Russia, applies in its fullest extent to the unpaved, unmacadamized roads of the Ukraine. These roads are among the worst in the world. In the summer they are enveloped in clouds of dust; in the spring and fall, as well as in rainy weather, they are strips of bottomless mud, in which even the light farm-wagon sinks to its axles. Wherever it is at all possible, vehicles drive across the fields along the roadway. Worst of all are the ways in the vicinity of and within villages and small towns. Drains and bridges are either unknown, or else there are not enough of them. The kind of roads just described are known in the entire right half of the Ukraine by the traditional name of "Polish roads." Still worse are the cane and corduroy roads of the Polissye; riding over these a long time becomes a positive torture to the traveler. In the Hutzul country most of the roads are ordinary bridle-paths (*plai*), accessible only to foot passengers and bridle-horses.

In Galicia, only villages and hamlets are connected by unpaved roads; in the Russian Ukraine even large cities. Not a single macadamized road leads to cities like Poltava, Kreminchuk, Katerinoslav, Rostiv, Kherson. That such negligence of the government should cause the Ukrainian peasantry incalculable damage, and actually hinder trade and commerce, is obvious at once.

Macadamized roads are very scarce in the Ukraine as a whole. The Austro-Hungarian part of the Ukraine, altho in this respect it is far behind the cultural countries of Europe, possesses a greater absolute number of macadamized roads than the Russian Ukraine, which is ten times as large in area. All cities and towns of the Austrian Ukraine are connected by macadamized roads. Eight such roads meet at Lemberg, seven in Czernowitz, six each in Peremishl, Ternopil, Kolomia, Buchach, Horodenka, etc. In the Russian Ukraine, on the other hand, the only macada-

mized roads that deserve the name, are the road from Homel to Kiev, the road from Kiev to Berestia (by way of Zitomir, Novhorod—Volinski, Rivne, with branches to Dubno and to Kremianetz, Lutzk, Kovil), the road from Tomashiv to Lublin, the road from Starokonstantiniv to Kamenetz, the road from Kursk to Kharkiv, and the mountain-road in the Yaila Mountains in Crimea. The remaining "great tracts" and "post-roads" (altho they sometimes figure as macadamized roads) are in such a miserable condition, that even in the large cities they look more like moraines than streets in a civilized city.

Quite analogous conditions prevail, also, in the railroad traffic of the Ukraine. In this respect, too, the Austrian Ukraine surpasses the Russian Ukraine by far, despite the backward condition of the former. Galicia, for instance, has 5 kilometers of railroad for 100 square kilometers of surface, the Russian Ukraine barely 1 kilometer. Besides the loose mesh of the railway-net of the Ukraine, there is the additional disadvantage that its lines tend toward foreign centers, and consider the local needs of Ukrainian traffic only in rare cases. Galicia, separated from the rest of Austria-Hungary by the natural boundary of the Carpathians, has had to develop an independent system of railways, with the main junction at Lemberg. In the Russian Ukraine all the main lines were built only for the convenience of the Moscow center and the Baltic ports. Hence, there is no direct railway line between Kiev and Odessa, for instance, or to Kharkiv, while there exist almost straight line connections between Romen and Libau, between Sevastopol and Kharkiv and Moscow. Besides that, strategic factors were the deciding ones in the building of the railroads (particularly in Western Ukraine), and the economic life of the country often has had to suffer for it.

A third disadvantageous aspect of the Russian Ukrainian railway system is its tariff regulations, the purpose of

which is to concentrate the greatest possible amount of traffic on the railroads of Central Russia and the Baltic provinces, and thus redound to their advantage. As a result of this tariff policy of the Russian Government, it happens that it is sometimes cheaper to transport goods from the Ukraine to the most distant Baltic ports, than to the adjacent ports of the Black Sea. Thus, the tariff rates for grain from Romen to Libau (1077 versts) are 21 kopeks per pud, from Romen to Mikolaiv (429 kilometers) 18 kopeks. It costs more money and trouble to transport coal from the Donetz region to the Black Sea ports than to the ports of the Baltic, which, of course, are far more distant. Naturally Pontian navigation suffers above all from this cause, but all Ukrainian trade in general suffers likewise.

As a result of the loose web of the net of railroads, and the destination of all the railroad lines in the Ukraine to foreign centers, there are almost no important railway centers in the Ukraine. The only center of European proportions is Lemberg, where nine main and local lines meet. Striy, Stanislaviv, Kolomia and Ternopil are smaller junctions, with five converging lines. In the Russian Ukraine, only Berestia and Kharkiv deserve the name of railway junction, in the strict sense of being a point of intersection of at least two main lines; the same is true of Poltava and Rostiv. The dependence of the Ukrainian railway lines upon foreign centers is the cause of the fact that frequently very important crossings lie beyond large towns, near to some miserable little village, as for example, Sarni, Bakhmach, Kosiatin, Zmerinka, etc. The only concentrated district of the Ukrainian railroad system with numerous local junctions, lies in the Donetz Plateau.

We shall now enumerate several railroads of the Ukraine which are most important for the traffic of the country. The Ukraine is connected with the Black Sea by means of seven main lines: Lemberg-Odessa, Znamenka-Mikolaiv,

Kharkiv-Sevastopol (with a branch to Kerch), Katerinoslav-Berdiansk, Donetz Plateau-Mariupol, Donetz Plateau-Tahanroh, Katerinodar-Novorossysk. Direct railroad connections with Roumania exist via Tiraspol to Yassy, and from Lemberg by way of Czernowitz to Bukarest. The following lines lead into Hungary: Stanislaviv-Sihot, Lemberg-Mukachiv, Lemberg-Uzhorod-Peremishl-Uihely. The connection with Austrian-Poland (Western Galicia) is formed by the Lemberg-Cracow and Stanislaviv-New-Sandetz lines, the connection with Russian-Poland by the lines of Kovel-Lublin-Warsaw and Berestia-Sidletz-Warsaw. The lines of Berestye-Bilostok, Rivne-Vilna, and Romen-Minsk-Libau lead north to White Russia, Lithuania and the Baltic. The Ukraine is connected with the north and northeast (Great Russia) by the lines of Kiev-Kursk, Kharkiv-Moscow, Kupiansk-Penza-Samara, and Donetz Plateau-Voroniz. Eastward, the railroad lines run from the Donetz region and Katerinodar to the bend of the Volga, and from Rostiv along the Caucasus to Baku.

In the Ukraine itself, the main lines of the railroads should run in a direction west and northwest to east and southeast. Hence, the main paths of traffic should be the following lines: Czernowitz-Odessa, Berestye-Rivne-Berdichiv-Uman, Kovel-Kiev-Poltava-Donetz region-Rostiv, Fastiv-Katerinoslav, Novosibkiv-Sumi-Kharkiv-Donetz Plateau, etc. As a result of the railroad policy of the Russian Government, the north and south lines, which lead directly or indirectly to the Muscovite centers, are held to be more important, as for instance, the following: Berestye-Minsk-Moscow, Lemberg-Rivne-Vilna, Novoselitza-Kiev-Kursk, Vapniarka-Cherkassi-Piriatin, Mikolaiv-Kreminchuk-Romni, Balta-Kreminchuk-Kharkiv-Kursk, etc. Of greatest importance are, also, the industrial railroads which connect the iron mines of Krivi Rih with the coal-fields of the Donetz region, via Katerinoslav.

The *waterways* of the Ukraine were at one time the main roads of trade and commerce. The great cultural mission of the Ukrainian waterways is familiar from history; thru the course of long centuries they were the only convenient thorofares thru the difficult forest regions and the pathless steppes of the Ukraine. Traffic on the Ukrainian waterways was, in former times, much more important than at present, not only because of the lack of other convenient pathways, but also because of their former greater length and capacity. Deforestation has decreased the normal level of the rivers; mill-dams have cut off the once navigable stretches of water.

The Ukraine possesses almost no artificial waterways. The only ones in existence—the Orginski Canal (Yassiolda-Vihonivske ozero-Shchara, 54 kilometers of canal, 124 kilometers of connected watercourses) and the Dnieper-Buh Canal (Pina-Mokhavez, 81 kilometers of canal, 134 kilometers of connected watercourses)—were built back in the days of Polish rule. They are antiquated, shallow and neglected, so they can serve only occasionally, and then only for log-floating.

The total length of Ukrainian waterways exceeds 7000 kilometers, which is just as much as the length of the waterways of Austria or of England, but only one-tenth that of European Russia. In this figure, sections of rivers are included which are navigable only for smaller river vessels.

The statement of the navigability of individual rivers of the Ukraine is contained in the section which deals with the rivers of the Ukraine (v. p. 70 ff.).

The most important waterway of the Ukraine is the Dnieper system. The main river is navigable in its entire Ukrainian section by the largest river vessels. In the entire Russian river system the Dnieper system constitutes 11% of the length, 10% of the total navigable length, 16% of

the length navigable by steamship-lines. The rapids section, however, as a result of the incomprehensible negligence of the Russian Government, is, to this day, accessible only to the smaller ships and rafts, and then only for sailing downstream. The canals built by the Government in the Porohi (1843—1856) are so badly placed that navigation, to this day, must still keep largely to the natural ancient "Cossack paths." In the years 1893—1895, investigating engineering commissions determined that it was possible, without great cost, to make the Porohi section completely navigable. But the thing never went any further than that. At the beginning of the 20th Century, English engineers worked out a plan for the complete regulation of the Pohori section and the construction of a waterway, accessible even to sea-going ships, which should connect the Baltic with the Black Sea by means of the Dvina and the Dnieper. The realization of this plan, which would be of the very greatest importance to the Ukraine, is still distant, and there is no hope that the Russian Government will attack it very soon.

Thus, the rapids hinder Dnieper navigation to this day, and not least for the reason that the insurance companies will not insure vessels for the rapids section. For this reason, the river fleet of the Dnieper is separated into two parts. Above the rapids (in 1900) 208 steamboats and 1002 other ships, below the rapids (together with the inlets of the Boh) 148 steamboats and 1203 other ships were plying. The number of steamboats increased threefold above the rapids and doubled below the rapids during the last sixteen years of the last century. The total horse power in 1900 was over 16,000. In 1906 the number of steamers of the Dnieper region was 382, the number of other ships 2218.

The Dnieper ships, propelled by sails and oars, which carry lumber, grain, fruit and other goods, are of various

types. The largest are called "honchaki," and have a tonnage of up to 1400; then come the "barzi" and "barki" (900—1300 tons), "berlini" (800—1140 tons), which are the most useful, "baidaki" (650 tons), "trembaki," "laibi," "dubi" (130—160 tons), "lodki" (80 tons), "galari" (50 tons), and "chaiki" (30 tons). The tonnage of the river fleet of the Dnieper (not counting steamers), in 1900, was approximately 500,000 tons, hence not much less than the tonnage of the present Austro-Hungarian merchant-marine.

Besides this, the Dnieper and its tributaries are navigated by a great number of rafts. In 1910 the number of them was 15,676.

Of the river harbors of the Dnieper system, Kherson carries on the greatest exchange of goods (10 million q. in 1910). Then follow Kiev (5.3 million q.), Katerinoslav (3.1 million q.), Cherkassi (2.1 million q.), Niznodniprovsk (1 million q.), Chernihiv (0.6 million q.), and Pinsk (0.5 million q.).

Navigation on the Don, as a result of the small volume of water, is much slighter than the Dnieper navigation, despite the absence of rapids. In 1900, the number of steamboats on the Don was 189, with 10,000 horse-power (in 1906 it was 382); the number of other ships 488, with 200,000 tonnage (in 1906 only 471 ships). The main river-harbor is Rostiv, which handles goods to the amount of 7.5 million q. annually.

A good deal smaller still is the navigation of the Dniester. Here, in 1900, there were only 9 steamers, with 200 horse-power (16 steamers in 1906), and 187 ships of other kinds with a tonnage of 22,000 tons (277 of them in 1906). The harbors of the main stream are Benderi (handles 0.7 million q. of goods) and Maiaki (0.5 million q.). On the Kuban River 69 steamers (counting in those of the Kura) and 131 other ships plied in 1906.

In general, river navigation in the Ukraine is on a very moderate scale. The negligence of the Russian Government and the low grade of culture limit the development of Ukrainian interior navigation. Thru the regulation of the Dnieper rapids and the connection of the river systems of the Dnieper and Dniester with the Baltic waters, by means of practicable canals, the waterways of the Ukraine could attain a wonderful importance.

Having come to the end of our description of Ukrainian traffic, we must still devote some attention to Ukrainian sea-navigation. Its present condition is as lamentable as the general condition of Ukrainian traffic. Of course, there is no doubt that the Black Sea has many qualities unfavorable to the development of navigation—its seclusion, the lack of good harbors, and an abundance of dangerous storms. Yet, what are these disadvantages against modern engineering? To assign all the blame to the low grade of Russian industry, as the Russian publicists are in the habit of doing, will not do. The causes of the slight development of Pontian navigation should be sought in the low cultural conditions of the ruling Russian nation and in the indolence of the government, which is not properly encouraging this navigation. The Russian steamers do not enjoy a good reputation on the Black Sea. Pontian coastwise navigation, which at the beginning of the 19th Century had a splendid start, and was carried on predominantly by Ukrainians, has not been able to develop properly under the heavy fist of the government. Today, conditions on the Black Sea are such, that the transportation of a unit by weight of goods from one Pontian harbor to another, costs just as much as the transportation of the same unit from the same port to England.

The number of steamers which sail the Black Sea under the Russian flag was, in 1901, only 316, with a tonnage of 187,000 tons, that is, 42% of the number and 52% of the

tonnage of the entire steamship fleet of Russia. In 1912 the figures were 410 steamers, 223,000 tons, the percentages being 42% and 47%. The number of sailing vessels in 1901 was 635, with a total tonnage of 47,000, and in the year 1912 there were 827 sailing vessels, with over 53,000 tons. The development of Pontian navigation is thus going a very slow, if not a retrogressive course.

The Russian Black Sea steamers maintain a more or less regular service between the most important Black Sea ports—Odessa, Mikolaiv, Kherson, Sevastopol, Rostiv, Novorossysk, etc. From Sevastopol a line goes to Constantinople, from Odessa one to Alexandria and Vladivostok.

Despite this miserable condition of Pontian navigation, from a European point of view, it still has greater significance than navigation on other seas of Russia. Near the end of the past century, 70% of the total oversea exportation of Russia by weight, and 65% by value, went thru the harbors of the Ukrainian coast. To be sure, in 1896, only 7.5% of the ships which visited these ports sailed under the Russian flag. In the year of 1911 it was not much different; of the outgoing ships only 11.4%, and of the incoming ships only 13.9% carried the Russian flag!

Among the Black Sea ports, Odessa, now, as ever, takes first place. The imports of Odessa, in 1911, amounted to 19.2 million q., the exports 26.2 million q. This, by the way, is an example of the great preponderance of exportation over importation. In other ports the disparity is even greater. Thus, the imports of Mikolaiv amount to only 2.3 million q., the exports 22.8 million q. For Tahanroh the respective figures are 1.9 and 19.5, for Novorossysk 1.5 and 18.3, for Mariupol 3.1 and 16.2, for Kherson 1.1 and 11.3, for Feodosia 0.6 and 4.8, for Rostiv 2.1 and 2.4, for Berdiansk 0.3 and 3.9, for Eupatoria 0.8 and 2.9, for Akerman 0.4 and 2.0.

These figures once more bring before our eyes the

ruinous effect of the economic policy of the Russian Government upon the Ukraine. The natural resources of the Ukraine are exported in enormous masses, without consideration of the needs of the Ukrainian population; the imports are to a great extent directed to other far distant coasts of the Russian Empire, and Great Russia gets the advantage of them, while the Ukraine is flooded with the inferior goods of Central Russian industry. If we consider, further, that an annual customs balance of 200 million rubles goes to the central government from the Ukraine, an amount which is then used for the development of the central provinces, we become able to understand under what unfavorable conditions the economic life of the Ukraine must develop, and how dearly its progress must be paid for.

## The Districts and Settlements of Ukraine

For centuries robbed of its political independence, the Ukraine today simply vegetates, instead of living in a state of full development. The fatal results of its lack of independence are visible in every aspect of the material and spiritual life of the country.

The present political-administrative division of the Ukraine is also a result of the want of political independence of this nation. This division corresponds neither to the natural nor to the anthropogeographical conditions, and to a great degree represents only entirely antiquated, now worthless remnants of the statesmanship of former centuries.

Even the state boundaries are very unnaturally drawn in the Ukrainian territory. The Austrian crown-province of Galicia embraces parts of Rostoche, Volhynia, Podolia, Pokutye, while other parts of this natural territory lie outside the state border, in Russia. The topography and the people are the same on both sides of the cordon; only

the state authorities and the ruling races are different. The Carpathian boundary between the Austrian and Hungarian parts of the Ukraine, to be sure, seems a good natural boundary, but in reality it would be that only if it ran along the southern foot of the range. For the Carpathian region of the Ukraine, as a result of its easy communications constitutes not only a physico-geographical, but also an anthropogeographical unit. On both sides of the border live the same Lemkos, Boikos and Hutzuls.

More glaringly still does the unnaturalness of the present political division of the Ukraine stand out, when we view the administrative units in the framework of the states which at present dominate the Ukraine. In Hungary, the Ukrainian part of the land is united into one great whole, together with Slavonia, Transylvania, Alföld, Banat, etc. All is centered in Budapest. Even the boundaries of the antonomous countries are so constructed that, besides a piece of Ukrainian territory, they embrace an equally great or even greater, but, at any rate, heavily peopled piece of a foreign national territory, *e. g.*, of the Roumanian, Magyar, Slovenian. As a result of this scattering allotment, the Ukrainians of Hungary possess no political influence.

The same is the case in the Austrian parts of the Ukraine. Galicia proper, which is inhabited by Ukrainians, the nucleus of the ancient Ukrainian Kingdom of Halich, which, in its physico-geographical aspect, is wholly a part of Eastern Europe, is welded together with the so-called Western Galicia, properly a part of Little Poland (grand-duchy of Cracow), which is inhabited entirely by Poles and belongs physically to Central Europe, both halves constituting together one administrative unit. The result of this unnatural union is the bitter racial struggle of century-long duration between the Poles and Ukrainians, a struggle which is still going on without prospect of peace, and is

very unfavorable for the beneficial development of the land. The Ukrainians are fighting for equal rights and against Polonization; the Poles, in the name of their state tradition, for their hegemony in the land and for the forcible assimilation of the Ukrainians. The only remedy which presents itself would be the division of the present crown-province of Galicia into two crown-provinces, an eastern Ukrainian, and a western Polish province. The present crown-province of Bukowina also consists of parts of Pokutye, Pidhirye and the Ukrainian Carpathians, together with a part of the Roumanian Carpathian foothills. This circumstance again brings about a national struggle between the Ukrainians and the Roumanians.

The greatest portion of the country, the Russian Ukraine, also suffers from an unnatural political division. The Ukrainian territory is divided into several great administrative districts, or groups of governments. Parts of the Ukrainian national territory lie in the Vistula Governments in Western, Southwestern, Southern and Little Russia and Caucasia. The boundaries of the individual governments everywhere are drawn without consideration for natural and ethnographic conditions. In this way the border districts of the unbroken Ukrainian territory have been united with parts of foreign racial territories into artificial administrative units, as, for example, the Governments of Lublin and Sidlez (the present Government of Kholm), Grodno, Minsk, Kursk, Voroniz, Don region, Stavropol, Bessarabia, etc. This circumstance being a result of the poor development of constitutional life in Russia, has no great significance now, but may in the future become as unfavorable for the Ukraine as is the similar condition today in Austria-Hungary.

The anthropogeography of today in describing a land, very seldom takes such artificial divisions into consideration. Then there is the additional circumstance that these

divisions, as is obvious, have no physico-geographical value. In like manner, the division of Russia "according to natural and economic characteristics," by Arseniev, Semyonoff, Richter, Fortunatov, etc., are worthless for geographical purposes. The most suitable of any of them is that of Richter, which gives the Ukrainian territory an independent position. A good division also comes from M. Drahomaniv, but it is not suitable for a geographical description.

For all these reasons we shall keep to the natural districts which we described in Book I. Such a division is the only justifiable one in a country which, like the Ukraine, has no political independence.

The *Carpathian region* constitutes the first natural district of the Ukraine. It is populated by three Ukrainian mountain-tribes—the Lemkos (from Poprad to the Oslava), the Boikos (together with Tukholzians, from the Oslava to the Limnitzia) and the Hutzuls (from the Limnitzia to the Roumanian ethnographic border). The population is everywhere thinly strewn, especially in the Boike country. The agriculture of the region is not sufficient at any point to nourish even the sparse population. The Lemkos and Boikos carry on a little farming (oats, potatoes), the Hutzuls only along the edge of the mountains. Cattle-raising, with dairying, forestry and lumbering, and among the Hutzuls their fine home industry as well, constitute the main sources of sustenance of the mountain dwellers. Every year a large percentage of the population goes out for seasonal migrations.

The settlements of the Ukrainian Carpathians all have the character of villages. The Lemko and Boiko villages usually form long rows of farms, which extend along the valley bottom. The Hutzulian villages, on the other hand, consist of separate farms which lie scattered on valley sides, valley plains, and even valley spurs. The huts

are everywhere built of wood, and covered with shingles or boards; only among the Boikos, sometimes, with straw. The very practical block houses, adapted to the climate, which are built by the Hutzuls, look very neat.

There are no cities in the Carpathian region, but only small towns, inhabited for the most part by Jews, and bristling with dirt. The Lemko country (Lemkivshchina) has only one larger town, Sianik (11,000 inhabitants), with railway-car factories. Also noteworthy, on the Hungarian side, are the little towns of Svidnik and Strupkiv, on the Galician side the resorts of Krinitzia, Zeghestiv, Vissova, Rimaniv. In the little towns of the adjacent Polish (New Sandetz, Gorlice, Gribov, Dukla) and Slovenian territory (Bartfeld) the Lemkos supply their needs in industrial products and grain.

In the Boiko country (Boikivshchina) the towns are little centers for the retail trade and the lumber industry, as for instance, Turka on the Striy (11,000 pop.), Lisko on the San, Stari Sambir on the Dniester, and Skole on the Opir (match manufacture). The village of Smorze is noted for its cattle fairs, Sinevidsko for its fruit trade. Along the Opir valley lie numerous summer resorts (Tukhla, Slavsko).

In the Hutzul country, too, there are many summer resorts, particularly in the valley of the Pruth (Dora, Yaremche, Mikulichin, Tatariv, Vorokhta). The Hutzuls make their purchases in the little towns which lie at the exit of the main passes of the range—in Nadvirna (saw-mills), Delatin (salt-works), in Kossiv, noted for its mild climate, its flourishing home industry and fruit-culture and its salt-works, in Kuti, where tanning and furriery flourish, and in Viznitza (saw-mills and lumber industrial school). In the center of the Hutzul country lies the large Hutzulian village of Zabye. There are noted mineral springs in Burkut and Pistin. On the southern

slope of the range lies the only city of the Hutzul country (21,000 pop.) and the town of Hust (10.000 pop.), both important as trade centers of the Hungarian Hutzul country.

In the southern sub-Carpathian zone the Ukrainian territory extends forward but a slight distance. The economic conditions of the mountain range suddenly give way to agriculture and vine-growing. All the cities of the region lie on the borders of the Ukrainian territory at the points of exit of important railroad lines and highroads out of the mountains. Such is the position of Uzhorod (17,000 pop.) and Mukachiv (17,000 pop.) where the products of the plain and the mountains are exchanged.

The Galicia-Bukowina *sub-Carpathian hill country* (Pidhirye) forms a gentle transition from the mountains to the plain. With the great wealth of forest and meadow and a not very fertile soil, agriculture begins to predominate but slowly as we depart from the limits of the mountain district. Besides, the great abundance of salt and petroleum demands many hands. The villages of the Pidhirye are as a rule, not large; the huts are regularly covered with straw. Here we find the rather unattractive type of the Galician cities and towns. Their chief characteristic is unfathomable mud or unfathomable dust on the streets, depending on the season of the year. Only the suburbs inhabited by the Ukrainian city-farmer population appear at all friendly, with their orchards and their little white-painted houses. The center of the city is regularly taken up by the Jews. Their houses, as a rule, defy all ideas of cleanliness and hygiene, and, amid bristling dirt, the retail trade surges thru miserable booths and shops. Almost nowhere in the Galician cities do we find wholesale trade or industry on a large scale, in the European sense. The Christian middle-class does not exist, and the educated class of the city population is represented by officials

(usually Poles, and, in decreasing proportions, Ukrainians).

On the western borderlands of the Ukraine, in this region, lies the city of Yaroslav on the San (25,000 pop.), a railway junction in an important strategic position. Founded by the ancient Ukrainian princes of Kiev, Yaroslav was once famous for its annual fairs. Near it, on the San, lies Radimno with its rope industry. But the most important city on the San is Peremishl (57,000 pop.), at once one of the oldest cities of Galicia and the one-time capital of the Ukrainian dynasty of the Rostislavids. Peremishl owes its importance to its position as a bridge city at a point where important roads from the west and northwest cross the San to the east and south. It lies at the important junction of the Galician main railroad line, with the important Lupkov line coming from Hungary, and is accordingly, as a result of its position, a first-class fortress, which closes the San valley and cuts off access to the adjacent Carpathian passes. The commercial standing of the city is considerable; here, too, a Greek-Catholic bishopric has its seat, and here there exist numerous Ukrainian cultural and economic societies.

In the sub-Carpathian Dniester region, which is traversed lengthwise by the Galician Transversal Railroad, lie a number of important cities. On the Dniester we find Sambir (21,000 pop.) at the crossing of the railroads, with a lumber industry of some size. On the Tismenitza Railroad lies Borislav (15,000 pop.), but recently a little Boike village, now, together with the adjacent towns of Tustanovichi (12,000 pop.) and Skhidnitza, the center of petroleum and ozokerite production. A forest of artesian wells, factory chimneys, petroleum reservoirs, have sprung up amid the famous "Borislav mud," among miserable dirty houses which shelter so many millionaires and hungry wretches, so much happiness and misery, crime and immorality. The refineries for the petroleum that is

gained here are located mostly in the adjacent Drohobich (39,000 pop.), the seat of the petroleum speculators. Salt works also are found in this city, still greater ones in the adjacent Stebnik, where enormous deposits of salt have been discovered, but thus far not been exploited. Truskavez is a well-known watering-place.

On the Striy lies the important railroad junction of Striy (33,000 pop.), with a mill, lumber and match industry, the seat of the Ukrainian dairymen's association and other Ukrainian organizations; at the mouth of the Striy the ancient town of Zidachiv. On the sub-Carpathian Transversal Railroad toward the east, lie the following: the watering-place Morshin, Bolekhiv with salt-works and match factories Dolina with salt-works and saw-mills, Kalush with saltpeter-mining and salt-works. Stanislaviv (over 60,000 pop.), situated at the junction of the two Bistritza rivers, is an important railway center in which the Lemberg-Czernowitz Railroad meets the Transversal railroad, the South Polish Railroad and the Hungarian branch railroad to Marmarosh. The city has an important industrial and commercial activity, and is the seat of the Greek-Catholic bishopric. Stanislaviv has inherited the former importance of Halich, the one-time capital of the Ukrainian Kingdom of the same name, which, at its highest development, reached the Polissye swamps on the north, the Dnieper on the east, the Black Sea and the Danube delta on the south. At that time (11th and 12th Century), Halich equalled or surpassed in size, wealth and commercial importance, most of the capitals of Western Europe. After a thousand years of Polish dominion it is now a miserable town in a beautiful location, important geographically for its traffic advantages. A side-line here branches off from the main railroad into Podolia. Attempts are being made to enliven Dniester navigation, which begins here

and in Zuravno at the mouth of the Svicha. Not far from Stanislaviv lie Tovmach, Tismenitza (10,000 pop.) with a leather industry, and Ottinia with a machine industry of some size.

In the Galician Pruth region, Kolomia (45,000 pop.) is the most important city, at the junction of sub-Carpathian and Pokutian railroad lines, with an important commerce and pottery industry. Further to the east, on the Pruth, lies Zabolotiv with a tobacco factory and Sniatin (12,000 pop.) with an active commerce and agricultural production. Dzuriv and Novoselitza have lignite mines. In the sub-Carpathian country of the Bukowina, the capital city, Czernowitz, developed in one century from a miserable village to a city of 93,000 inhabitants. Czernowitz has some industry and considerable commerce. Important railroads lead from here, via Novoselitza to Russia, and via Itzkany to Roumania. Czernowitz is the seat of the most eastern German University (but several professors lecture in Ukrainian), a Greek-Catholic metropolitan, and numerous Ukrainian organizations. In nearby Sadahora, well-frequented annual fairs take place. The cities carrying on a lively trade, Seret, Storozinetz (10,000 pop.), Radivtzi (17,000 pop.—the city with the great breeding-stud), and Suchava (12,000 pop.), all lie on the boundary of the Ukrainian and Roumanian-speaking populations. Katshka possesses large salt-works.

The *Rostoche*, which embraces a part of Northern Galicia and the southern part of the Government of Kholm (eastern borderlands of the Governments of Lublin and Sidletz), is, for the most part, an agricultural country, altho the forest areas, which are still rather large, have retained their once flourishing lumber industry. The villages of this region are large, but consist, as a rule, of scattered hamlets and lone farms. There are not many cities in the Rostoche region, but on its southern border we find one of

the most important in the Ukraine, the ancient royal city of *Lviv* (Lemberg, 220,000 pop.).

The importance of the geographical position of Lemberg is in the fact that it lies at the point of the easiest passage from the low country of the Buh to the west, and into the Carpathian country across the Ukrainian group of plateaus, which is narrowest here. Lemberg commands all the more important roads of the Western Ukraine, and, after their union, leads them westward. Lemberg is the greatest railroad center of all the Ukraine; nine railroads as well as eight highroads converge here from all parts of the continent. The thing that has contributed most to the remarkable growth of Lemberg in the last half-century, besides the railroads, is its position as the capital of Galicia, that largest of the Austrian crown-provinces. Founded about the middle of the 13th Century by the Ukrainian princes of Halich, Danilo and Lev, Lemberg, about the middle of the 14th Century, fell under Polish rule. Here industry and commerce flourished in the 15th and 16th Centuries, thanks to the German middle-class of the city; then Lemberg declined irresistibly until it came under Austria's dominion as a little town, from which time on, it flourished again. At present Lemberg is the trade center of Ukrainian-Galicia and shows some industrial progress (brick-kilns, breweries, alcohol distilleries, railroad shops, etc.). As a result of recent rapid development, the character of the city is almost wholly modern; the number of historical landmarks is not large. Lemberg is the seat of three archbishops, a University with several Ukrainian chairs, a technical and a commercial college, as well as many trade schools and intermediate schools. Lemberg is also one of the chief centers of Ukrainian cultural life, and the seat of many important Ukrainian societies and institutions.

In the Galician Rostoche region there are besides Lemberg, only small towns: Zovkva, Yavoriv (10,000 pop.),

with lumber industry, Rava (11,000 pop.). At the railroad junction, Nemiriv with mineral springs, Potilich with a considerable pottery industry. Mosti veliki, the large village of Kaminka voloska (10,000 pop.), Belz, formerly a Ukrainian royal residence. On the Buh lie the following: the old town of Busk, Kaminka strumilova, Sokal, at the point where more active river navigation begins.

In the Kholm Rostoche, the most important city is Kholm (20,000 pop.), founded, like Lemberg, by Prince Danilo, now a Jewish city carrying on a lively trade in the agricultural products of this fertile region, and the capital of the Government of the same name. Tarnohorod and Tomashiv are notorious for their smuggling, Bilhoray is known for its sieve industry, Hrubeshiv and Zamostye (12,000 pop.) for their trade in foodstuffs.

A country of similar anthropogeographical character is the adjacent plain of *Pidlassye*. This country embraces the northern part of the Government of Kholm and the southern part of the Government of Grodno. Fertile stretches of land, with large villages, here alternate with large wooded areas (the virgin forest of Biloveza) and swamp areas, in which small villages and hamlets predominate. The most important city of the Pidlassye is the fortress of Berestia (57,000 pop.) on the Mukhavetz, the eastern base of the fortress quadrangle of the Vistula region and an important railroad center, where five lines meet with the Dnieper-Buh Canal. Besides its very considerable commerce, Berestye has great historical reminiscences of the union of the orthodox church with Rome, accomplished here in 1596. On the left bank of the Buh lie the commercial cities of Vlodava and Bila (13,000 pop.), on the Mukhavetz lies Kobrin (10,000 pop.), and in the neighborhood of the Bilovez Forest, the ancient Kamenetz-Litovsky and Bilsk.

The neighboring Ukrainian country in the east is the

Ukrainian ***Polissye.*** It embraces the southern part of the Government of Minsk, on the right shore of the Zna and the Pripet, and the northern lowland region of the Governments of Volhynia and Kiev. As a result of the decided preponderance of forest and swamp, agriculture must retire to the background, and confine itself only to the small number of higher and more fertile places. There are not such great obstacles to cattle-raising, but forestry and lumber-floating play the most important part. The most important city of the Polissye is Pinsk (37,000 pop.), situated on the navigable Pina, where the Dnieper-Buh Canal and the Dnieper-Niemen Canal connect with the Pripet system. Here begins the regular steamship navigation of the Pripet, here there are large saw-mills, match factories, shipyards, beer and mead breweries and tobacco factories, and here active commerce and lumber-floating flourish. Another important river port is Davidhorodok on the mouth of the ***Horin***, the people of which carry on ship-building and river-navigation and engage in sausage-making and cheese-making. Farther down the river is the antique Turiv, a former royal city, now a miserable little town with a population of farmers and timber-floaters. The equally antique town of Mosir (12,000 pop.) has retained a greater significance, with a good river harbor, ship-building industry and match-making. The last important port on the Pripet is Chornobil.

In the Volhynian Polissye, Kovel (17,000 pop.), situated on the navigable Turia, is, aboveall, an important railroad center, which carries on a considerable trade in agricultural products and wood. Another important railroad center is Sarni on the Sluch. The antique town of Orruch on the Norin is rich in swamp-ores and pottery-clay.

The natural district of Volhynia embraces only the Volhynian Plateau, together with the wide river plains, which penetrate far into the heart of the Plateau. To

Volhynia, then, belongs the southern part of the present Government of Volhynia, as well as a small strip of the Government of Kiev, on the left bank of the Teterev. Here agriculture forms the main occupation of the people. Forestry and lumbering become less important. With regard to the manner of settlement, Volhynia still has a suggestion of the adjacent regions in the west and north, with their small villages, hamlets and single farms. In the east it begins to assume the genuine Ukrainian character, with large villages and country towns. The cities and towns of Volhynia are, as a rule, not large, inhabited chiefly by Jews, dirty and neglected, surpassing in this respect even the typical Galician villages and towns. On the Galician side there is only one city worthy of mention, namely Brodi (18,000 pop.), which carries on a considerable trade in agricultural and animal products, as well as some lively smuggling. On the Russian side the following may be enumerated, from west to east: Volodimir volinsky (10,000 pop.), formerly a royal city, now a miserable Jewish town with some lumber and grain trade and smuggling. Lutzk, Dubno and Rivne form the Volhynian triangle of forts directed against Austria. Lutzk (32,000 pop.) is an old royal city at the junction of roads which cross the navigable Stir at this point, and carries on a considerable trade, as well as a cloth and leather industry of some dimensions; Dubno (14,000 pop.), on the Ikva, is known for its once famous annual fairs; Rivne (39,000 pop.) carries on a considerable trade with grain, live-stock, alcohol, etc. Along the Austrian border lie: Berestechko on the Stir, memorable for the unhappy battle fought by Khmelnitsky against the Poles (1651); Radiviliv, opposite Brody, the main seat of smuggling; Pochayiv, a famous place of pilgrimage, and simultaneously a den of smugglers.

Kremianetz (18,000 pop.) on the Ikva, a strong fortress in the days of the Ukrainian princes, now carries on a con-

siderable grain trade. On the Horin, at the point where that river becomes navigable, lies Ostroh (15,000 pop.), with many ruins, the former residence of the Princes of Ostrohsky, who founded an academy here in the 16th Century, and made of Ostroh an important spiritual center of the Ukraine of that time. Zaslav (13,000 pop.), likewise on the Horin, was once the residence of the Princes of Zaslavsky. Both cities carry on some trade in grain today. On the Sluch lie the cities of Starokonstantiniv (17,000 pop.), founded by the Princes of Ostrohsky, with considerable export of grain and cattle, and Novhorod Volinsky (Zviahel, (17,000 pop.), rich in marsh-ore and pottery-clay. Korez (10,000 pop.) is famous for its porcelain clay. Just on the border of Volhynia lies its administrative center, Zitomir (93,000 pop.). This old city lies at the edge of the forest and agricultural regions, carries on a considerable trade in grain and wood, salt and sugar, and has an important clothing, leather and tobacco industry. Downstream, on the Teterev, lies the little commercial city of Radomishl (11,000 pop.).

*Podolia's* natural territory embraces the most eastern part of Galicia and almost the entire Government of Podolia, besides the northern borderlands of Kherson. Podolia is a purely agricultural region; its manufacturing is limited to home industry, besides some mills, distilleries and sugar factories. The Podolian villages are large as a rule, lie in rows in the cañon valleys, while, on the height of the plateau, usually only single farms and hamlets are seen. The huts are almost all built of loam and covered with straw. City settlements are rare and small, all insignificant emporiums for agricultural and animal products.

On the western edge of Galician-Podolia lie Horodok (13,000 pop.), on a large pond formed by the Vereshitza, and Lublin, with sulphur baths; on the Hnila Lipa, the antique city of Rohatin; on the Zlota Lipa, Berezani

(13,000 pop.), with a large pond; on the Koropetz River there are Pidhaitzi and Monastiriska, with a tobacco factory; on the Stripa River, Zboriv, memorable for the decisive victory of Khmelnitsky over the Poles and for the treaty of 1649 following, which allowed the Ukraine almost complete autonomy—within the framework of the Polish state. Downstream, on the Stripa, lies the commercial city of Buchach (14,000 pop.). On the northern boundary of Podolia, already in the Buh region, lie Zolochiv (13,000 pop.) and Sassiv, with a paper and pottery industry. On the Sereth, and in its district, lie Zbaraz, memorable for the victory of Khmelnitsky (1648); Ternopil (34,000 pop.), the most important railroad center and commercial city of Podolia, with a large grain, cattle and alcohol trade; Terebovla, a former Ukrainian prince's residence; Chortkiv, a center of Podolian local railroads. On the Sbruch, the only town worth mention is the border town and border station of Pidvolochiska-Volochiska. In the Dniester cañon there is only one important place. Salishchiki, with considerable fruit-culture. All the cities of Galician-Podolia are bridge cities, and lie at convenient crossings over the left tributaries of the Dniester. All these crossings were once guarded by castles, about which cities were later developed.

In Russian-Podolia the number of cities and towns is still smaller. The capital of the Government of Kamenetz Podilsky (50,000 pop.), lies on the Smotrich, and was at one time an important border-fortress against the Turks. To this day the city has no railroad connections, hence its commercial importance is very slight. The adjacent Zvanetz is memorable because of the Khmelnitsky campaign (1653). On the Dniester, whose entire valley is covered with fruit orchards and vineyards, lies the important river port of Mohiliv (33,000 pop.), with considerable lumber, grain and fruit trade; Ushitza with a fruit trade; the river part of Yampol on the Dniester rapids. In the

region and the valley of the Boh lie Proskuriv (41,000 pop.), a genuine village-city with considerable trade; Pilavtzi, memorable because of the complete defeat suffered there by the Poles (1648); Meziboz, in an important strategic position against the Austrian border; Letichiv and Khmelnik (11,000 pop.), surrounded by orchards; on the Shar R., Litin (10,000 pop.); on the Rivi the once famous Bar (11,000 pop.), now a miserable town; further downstream on the Boh, Vinnitza (48,000 pop.), once a Cossack city, memorable because of a defeat of the Poles (1651), now a lively commercial city. The former capital of the palatinate of Bratzlav is now entirely insignificant, likewise the new Olhopil on the Savranka. The only commercial city of any importance in Southern Podolia is the muddy Balta, which, in its famous annual fairs, trades in grain, cattle, bacon and skins, but especially pumpkins and melons, and has a soap and candle industry of some importance. The adjacent city of Ananiiv (17,000 pop.) also carries on considerable trade in agricultural products.

*The Pokutian-Bessarabian Plateau* embraces a narrow zone of Southeastern Galicia and the Northern Bukowina, as well as the northern part of the Russian Government of Bessarabia. The manner of settling is similar to the Podolian, with large villages and few small cities. Agriculture and wine-growing are the most important occupation of the people; toward the south cattle-raising is becoming of greater importance. Home industry is insignificant, of factory industry there is almost none. In Galician-Pokutye the only cities worthy of mention are Horodenka (11,000 pop.), in a very fertile region, and the old commercial city of Sniatin (12,000 pop.), and in Bukowina-Pokutye the commercial town of Kitzman. In Bessarabia we find, on the Dniester, the former fortress of Khotin (18,000 pop.), memorable for two Turkish battles (1621 and 1673), now a river port and the seat of an active grain and fruit trade,

as well as a notorious nest of smugglers. The second Dniester port of Bessarabia, Soroki (15,000 pop.), serves principally the export trade. At some distance from the course of the Dniester lies the insignificant town of Orhüv (13,000 pop.), and the dirty city of Biltzi (19,000 pop.), with a large grain and cattle trade. The capital of Bessarabia, Kishiniv (125,000 pop.), lies outside of the Ukrainian territory.

The *Dnieper Plateau* is important, not only because of its agriculture, cattle-raising and fruit-culture, but also because of a considerable cultivation of commercial plants, because of a developed home and factory industry, and because of a comparatively lively trade. It is one of the central districts of the Ukraine, with typical conditions of settlement. Large agglomerations of dwellings, picturesquely located, consisting of whitewashed, straw-covered clay huts, lie on the rivers and creeks, usually on wide valley bottoms or slightly inclined valley sides, surrounded and dotted with the fresh green of orchards. On the plateau, which is one great wave of never-ending grain-fields, there lie only a few scattered manors of large landowners, single farmhouses, bee orchards, adjoining little woodlands and groves. The number and size of the cities is not great. The prevailing type is that of the village city—a great village with an area of buildings in the middle, which have a city-like character. The streets are broad and unpaved, the green of the gardens being apparent even in the center of the city. Where the northeastern spurs of the Dnieper Plateau reach the Dnieper River, lies the natural capital of the Ukraine, the former "mother of the Ruthenian cities," Kiev (506,000 pop.). Its great history finds expression in an enormous number of architectural monuments, especially churches and convents. (Lavra Pecherska, the Church of Sophia, the Church of Andreas, the Tithe Church, the Golden Gate, etc.). Kiev was the capital of the

ancient Ukrainian Kingdom and its spiritual center; today it is called the "Ukrainian Jerusalem," and is visited by hundreds of thousands of pilgrims every year. Besides its historical importance, Kiev possesses also a great geographical significance. Its picturesque position on the lofty right-hand bank of the Dnieper, which is cut up into beautiful erosive hills, offers great geographical advantages. Here, opposite the Desna outlet, the Dnieper, after receiving its two largest tributaries, completes its transformation into the second largest river of Eastern Europe. The waterways of the Pripet, the upper Dnieper and the Desna here form a junction, the importance of which is heightened by the junction of railroads and highways at the same point; such thorofares have always found in Kiev the most convenient crossing over the Dnieper River into the Western Ukrainian lands. This junction of roads favors the rapidly progressing development of Kiev's commerce, which concentrates in the "lower city" (Podil) and in its great river harbor. Kiev is the most convenient emporium for the forest and grain regions of the Ukraine, which border on one another here. In the last decades a considerable factory industry has developed in Kiev, embracing all possible branches of industry. Above all, the sugar industry has its center here. Kiev has a Russian University and a technical college. Ukrainian cultural life, which has always had its main headquarters in Kiev, has experienced an unexpected rise here since 1905.

Not far from Kiev, which is an important fortress today, there lie many places of historical significance, among them the convents of Vidubitsky and Mezihirsky. Rzlshchiv is a river port with some grain exportation. On the Stuhna lies the old city of Vassilkiv (18,000 pop.), with an insignificant trade, from a modern point of view. At the point where the borders of the Governments of Kiev, Volhynia and Podolia touch, lies Berdichiv, a city of 83,000, inhabit-

ed mostly by Jews, after Kiev the most important emporium for cattle and grain in the country. The products of the industry of this place are offered for sale by Jewish peddlers thruout the entire right half of the Ukraine. In the river region of the Ross we find several cities which are local centers of the sugar and alcohol industry: Skvira (16,000 pop.), in a region covered with ancient walls, with pottery and cap manufactures; the old Cossack city of Bila Tserkov (61,000 pop.), famous for the treaty of Khmelnitsky with the Poles (1652), now a lively commercial city, with sugar and machine manufactures; Tarashcha (11,000 pop.), with a considerable wagon industry (the familiar tarantasses are made here). Korsun is noteworthy because of the victory of Khmelnitsky over the Poles (1648). Nearby lie the villages of Kirilivka and Morintzi, the home of the greatest Ukrainian poet, Taras Shevchenko.

The entire plateau zone along the right Dnieper bank is full of old monuments of Ukrainian history, of walls, ancient fortifications, ruins and barrows. Along the Dnieper lie in succession: Trekhtimiriv, Kaniv, Cherkassi, once the most important center of the Ukrainian Cossack organization. Near Kaniv, elevated on the lofty right bank of the Dnieper, is the mound of Shevchenko, visited every year by numerous companies of pilgrims of all classes of the Ukrainian nation. Kaniv is now a little town with an insignificant river harbor. Cherkassi (40,000 pop.), on the other hand, thanks to its large river harbor and the railroad which crosses the Dnieper here, has developed into a lively commercial city (wood, iron, sugar and salt trade, lumber and sugar industry). By the example of Cherkassi or Kreminchuk, we are shown how the poor villages and towns on the Dnieper could be developed if cultural conditions were favorable. A fine example of such a neglected town is Chihirin (10,000 pop.), on the Tiasmin, the former residence city of the Ukrainian hetmans. Situated, as tho

by a wonderful coincidence, in the center of the present Ukrainian territory, Chihirin is hardly more than a large village, with crooked, muddy streets, a slight lumber and grain trade, remains of the Chumak organization, and an insignificant stonecutters' trade. In Subotiv, nearby, Khmelnitsky was buried, but his grave was destroyed by the Poles a short time after. At the Tiasmin outlet lies the river port of Kriliv (12,000 pop.), with lumber and cattle trade; further downstream, Verkhnodniprovsk, with an iron industry. At the source of the Inhuletz is Olexandria (14,000 pop.), noteworthy for some milling industry.

On the southwestern and southern border of the Dnieper Plateau, which is really part of the country drained by the Boh, there lie several smaller towns, *e. g.*, Lipovetz, Haisin, Novomirhorod, with some grain and cattle trade. In this respect, Zvenihorodka (17,000 pop.) is of greater importance. Nearby lies Katerinopol, with its lignite mines. Uman (42,000 pop.) is known because of its associations with the Haydamak times, its great park, and its considerable grain trade. The largest city of this strip of borderland, Yelisavet (76,000 pop.), at the source of the Inhul, carries on a considerable trade in grain and wool, and possesses an important factory industry.

The *Dnieper Plain*, in its northern part, reveals quite a Polissian character. But in the north we note the first differences too—the highly developed home industry and agriculture much more highly developed than in the Polissye region. On the left Desna bank, lumbering declines gradually, and the villages of the Polissian type give way to the typical Ukrainian villages, consisting of neatly whitewashed, straw-covered huts, which lie picturesquely among fruit-gardens. The towns and suburbs here, as in fact everywhere in the left half of the Ukraine, have an entirely rural appearance. The cities have very wide streets and squares. There are very few connected rows

of houses, and the single houses are surrounded by gardens and large yards. The Dnieper Plain embraces the greatest part of the Governments of Chernihiv and Poltava, and the northern edge of Katerinoslav.

The chief city of the northern half of the section is Chernihiv (33,000 pop.), an old city, perhaps as ancient as Kiev. It lies at the crossing of the main road leading to Muscovy, across the navigable Desna. In the city and its vicinity we find many historical monuments, churches, walls and barrows; but the present commercial importance of the city is very slight. Konotop (20,000 pop.), surrounded by swamps, and at one time a strong fortress, famous for the victory of the Cossack hetman, Vihovsky, over the Russians (1659), now carries on a considerable commerce, thanks to its railroad junction, and has large peat deposits. Bakhmatch, which lies nearby, is an important railroad junction. On the Sem lies the commercial town of Baturin, the former hetman residence, whose population was completely slaughtered by Menshikov in 1709. Sosnitza, Borzna (12,000 pop.) and Berezna (10,000 pop.) carry on an insignificant grain and cattle trade. On the navigable Oster lies Nizin (52,000 pop.), an old city of the time of the Ukrainian princes, in the 17th Century a Greek colony carrying on a lively trade, later famous for its great annual fairs. Just now the tobacco and grain trade of the city is increasing considerably. There is also a philological academy here. Further downstream, on the Oster, we find two old towns, Koseletz and Oster, with a river harbor and a considerable net industry. On the Trubaylo and on the Alta lies the ancient city of Pereyaslav (15,000 pop.), founded by Volodimir the Great, noteworthy for the victory of the Cossack hetman, Taras Triasilo, over the Poles (1630). Here the unfortunate treaty of 1654 was enacted, joining the Ukraine, which had just been freed from Polish rule, to Russia, as an autonomous vassal state. The once navigable

Trubaylo has become shallow, the railroad line has left the city lying to one side and Pereyaslav has lost all significance. Equally insignificant is the adjacent town of Zolotonosha.

In the Sula region, on the verge of the Dnieper Plain, lies Romen (Romni, 33,000 pop.), with annual fairs that are important even today, the center of the judicial district of Romni-Libau, which transports the products of the Ukraine to the distant Baltic ports. Romen has a soap industry and tobacco factories, and here and in the adjacent town of Lokhvitzia, fruit and tobacco culture flourish. The center of Ukrainian tobacco-culture is Priluky (31,000 pop.), on the Udai, which carries on the greatest tobacco trade in all Russia, exporting half a million puds of it annually. On the Udai also lies the old Cossack city of Piriatin, now an important railroad center. Below the outlet of the Udai into the Sula, lies ancient Lubni (10,000 pop.), with its great fruit-gardens and tanneries.

In the region drained by the Psiol, we find on the Khorol, the old Cossack city of Mirhorod (10,000 pop.), so masterfully pictured by Gogol, with its industrial school and its great home industry. Mirhorod was once an important center of the Chumak organization. Not far from it lies the railroad center of Romodan and the antique town of Khorol. Hadyach is noteworthy because of the treaty of the Cossack hetman, Vihovsky, with Poland (1658), which was to join the Ukraine as the third autonomous unit to the Polish-Lithuanian state. Sinkiv (10,000 pop.) is an important center of a versatile home industry; Rashivka, a center of the Prassoli societies; Sorochintzi, the birthplace of Gogol, has grain and cattle markets; Reshetilivka is famous for its sheep-raising and its leather industry. Above the outlet of the Psiol into the Dnieper, lies the chief river port of the region, Kreminchuk (99,000 pop.), an important bridge city, where numerous

highways and two railroads cross the navigable Dnieper. Kreminchuk trades, particularly in lumber and grain, is an emporium for lumber, coal and salt, and has machine, tobacco, carriage and leather factories, and large saw-mills. The city is subject to many floods and conflagrations, but is growing constantly. Half of the population is comprised of Jewish merchants and business men. In the spring the population of the city is regularly doubled. On the opposite Dnieper bank lies the river port of Krukiv (10,000 pop.), almost a suburb of Kreminchuk.

In the river region of the Vorskla, on the northeastern boundary of the plain, lies Oposhnia, widely known for its pottery. Farther downstream lies the city of Poltava (83,000 pop.), the chief city of the southern part of the left half of the plain, notable for the unfortunate battle (1709) in which Peter the Great, with Polish help, destroyed the plan of the dashing hetman, Mazeppa, to free the Ukraine from Russian dominion, with the aid of Charles XII. of Sweden. Today Poltava is a rising industrial city, with an important railroad junction and great annual fairs, chiefly for wool and horses. Kobeliaki (12,000 pop.), situated downstream on the Vorskla, has a cloth industry of some dimensions, as has also the district of Konstantinohrad, in the river region of the Orel. On the southeastern border of the plain, where it joins the Pontian plain in the region of the Samara, lie the old Zaporog settlements of Samarchik (Novonoskovsk, 13,000 pop.) and Pavlohrad (41,000 pop.), with a considerable grain trade and a large mill, leather and wax industry.

The spurs of the *Central Russian Plateau*, which lie within the borders of the Ukrainian national territory offer an almost complete anthropogeographical analogy to the above discussed district. In the north the Polissian character is still apparent. In the south agriculture and home industry are well developed. Traffic is more difficult,

because of the greater distance to the navigable Dnieper, but is rather active with the Muscovite country. The left plateau district embraces the northwest frontiers of the Governments of Chernihiv and Poltava, all of the Government of Kharkiv and the adjacent districts of Kursk, Voroniz and Don.

The northernmost town of the Ukraine is Mhlin, with its important annual fairs. In the vicinity lies Pochep, with some textile industry and Klintzi (12,000 pop.), the "Manchester of the Chernihiv country," with spinning-mills, cloth, leather and metal factories. The inhabitants of nearby Ardon engage in carriage-making, and carry on peddling thruout the entire Ukraine. Considerable industry and trade is carried on also by Novosibkiv (16,000 pop.) and Klimiv. Starodub (13,000 pop.), the old Cossack city, on the other hand, is rich in historical reminiscences. The ancient town of Novhorod Siversky, on the Desna, and Korop, downstream, are insignificant today. Kluhiv (15,000 pop.) carries on a considerable grain trade. In the vicinity lies Shostka, with a powder factory which supplies all the powder factories of Russia with salpeter. Krolevetz (10,000 pop.) still has important annual fairs, the old town of Putivl some trade in grain and flax, Bilopilye (15,000 pop.), important annual fairs and a great grain trade. In the country about the source of the Sula lies Nedrihailiv; at the source of the Psiol is Sudza (13,000 pop.), with a large grain, honey and fruit trade. Miropilye (11,000 pop.), has an important shoe industry, Sumi (52,000 pop.), situated at a railroad junction, has an important factory industry (especially sugar factories) and important annual fairs. The old Cossack city of Lebedin (14,000 pop.), famous because of the atrocities of Menshikov (1708), now carries on a considerable grain trade.

In the region of the source of the Vorskla lies the town of Hraivoron, downstream Okhtirka (32,000 pop.),

a much frequented place of pilgrimage, with considerable fruit-culture and lumber, fur, shoe, pottery and milling industries. Considerable fruit-culture is carried on also by Bohodukhiv.

The farther part of the left plateau lies in the region drained by the Don. On the small rivers, Kharkiv and Lopan, lies the capital of the region, Kharkiv (248,000 pop.). Founded as a Cossack hamlet in the 17th Century, Kharkiv has grown very rapidly, thanks to its geographical position at a convenient crossing point from the Dnieper region into the Don region, between the interior and the sea. Here was once a crossing of Chumak roads, and is now a railroad junction. Hence the importance of Kharkiv lies in commerce. Four great fairs, whose business still amounts to 80 million rubles a year, on an average, are especially important for trade in grain, horned cattle, horses, wool and manufactures. Besides, Kharkiv has a considerable factory industry (linen, cloth, soap, candle, sugar, alcohol, tobacco, brick, ceramic, machine, boiler and bell factories). Kharkiv is the seat of a Russian University, and one of the chief centers of Ukrainian cultural life.

In the east of the Donetz course lie several small cities, *e. g.*, Zolochiv, with its annual fairs; Valki, with a considerable home industry and large fruit-gardens. In the country about the source of the Donetz, on the border of the Ukraine, lies Bilhorod (22,000 pop.), a commercial city with a woolen industry. Downstream, on the Donetz, lie Vovchansk (11,000 pop.), Chuhuyiv (13,000 pop.) and Smiiv. Korocha (14,000 pop.) carries on grain, cattle and fruit trade in its annual fairs, and has some industry (oil-pressing, alcohol-distillation, and albumen manufacture). On the Oskol lie the following: Stari-Oskol (17,000 pop.), with a considerable trade and with a leather, wax, mead and tobacco industry; the insignificant town of Novi-Oskol, Valuiki, Urasova (13,000 pop.), with grain trade, tanneries

and rope factories; Kupiansk at a railroad junction. On the Tikha Sosna lies Biriuch (13,000 pop.), with annual fairs and oil factories, Olexiyivka, known for sunflower-culture and painters' guilds, and Ostrohorsk (22,000 pop.), with a large grain, cattle and bacon trade, and soap, wax and tobacco industry, once a center of the fish trade. Starobilsk (13,000 pop.) has lively annual fairs.

On the Don, within the province of the plateau, there are no larger cities. Korotoiak (10,000 pop.) carries on an active trade, Pavlovsk has soap factories, fat-extraction and oil-presses, and is an important river-port, from which the regular Don navigation begins. Altogether, on the eastern border country of the Ukraine, there are no larger cities or even towns. Only a few isolated large villages gain greater significance thru their markets and industry. One of these is the largest village of the Ukraine: Buturlinivka (38,000 pop.), with important annual fairs, with brick-kilns, tanneries, alcohol-stills, as well as very considerable furriery and shoemaking.

The *Donetz Plateau* is, from an anthropogeographical point of view, a very remarkable country, which has its closest analogy in the North American mining districts. Only the northern edge of the country on the Donetz has an appearance analogous to the adjacent Kharkiv country, with large, typically Ukrainian villages and village-towns. All the remaining region of the Donetz Plateau is a naked steppe. Here and there factory chimneys, isolated or in groups, rise, surrounded by factory buildings and laborers' huts. The settlements come into existence and grow with true American speed. The Donetz Plateau embraces parts of the Governments of Kharkiv, Katerinoslav and Don.

One of the farthest advance guards of the typical Ukrainian settlements is Isium (23,000 pop.), on the Donetz, one of the chief centers of the pottery industry.

Slaviansk, once Tor (20,000 pop.), on the Torez, has large salt mines and salt lakes, with bathing pavilions, which draw many guests in the summer, large salt-works and a number of mills, porcelain and metal industries. Besides, Slaviansk has important horse-markets. Nearby, on the chalk-cliffs of the Donetz, lies the famous convent of the Holy Mountains. On the eastern border of the Ukraine, on the Donetz, lies the river port of Kamenske (51,000 pop.), with a great grain trade and glass-works.

In the mining and factory district of the Donetz Plateau there lie, besides innumerable small industrial towns, a number of more important centers. Luhan (60,000 pop.) has a large metallurgical industry with foundries and hammer-works, machine-factories, numerous alcohol-stills, breweries, tanneries, soap and tile factories. Bakhmut (33,000 pop.) has large salt mines and salt-works and considerable trade; the adjacent town of Mikitivka, mercury and coal mines. Yusivka (49,000 pop.) is the chief center of the coal mines, iron and steel factories; Hrushivka (46,000 pop.) the center of the anthracite mines.

The *Pontian Plain* gives us an anthropogeographical picture which is different from that of the thus far described sections of the Ukraine. Here, in the newly settled steppe region, the type of the Ukrainian settlements gradually disappears. The Ukrainian type of the large villages remains, to be sure, but these villages are, by their position, dependent upon the water as well as other conditions of a practical nature, such as roads, mines, etc., which tempt a great number of people to settle in the district. The huts here and there bear the marks of provisional buildings, are not always whitewashed, are covered with reeds, and in some places even earthen huts have been preserved. As a rule, however, the typical Ukrainian whitewashed and straw-covered clay hut advances farther and farther, and is sometimes even prettier and better equipped here than

in Northern Ukraine, thanks to the greater prosperity of the peasant. In the last few years more and more brick houses have been built, covered with tiles. Extensive steppe agriculture and steppe cattle-raising have, to this time, been the chief occupation; on the coast, salt-extraction and navigation. Typical Ukrainian towns are rare here, but in the once wild steppes, on the other hand, large commercial and industrial cities have shot up, which possess a much more European appearance than the Russian cities. Almost all these cities lie on the sea, or at the river outlets. The Pontian Plain embraces the southern parts of Bessarabia, Kherson, Katerinoslav, the mainland part of Tauria, the southwestern part of the Don region and the northern part of the Kuban region.

On the Kilia arm of the Danube delta lie the following important river ports, at the same time the centers of the Danube trade and of the sea-fishing industry: Ismail (36,000 pop.), Kilia (12,000 pop.) and Vilkiv. Akkerman (40,000 pop.), on the Dniester liman, rich in historical memories, is an important harbor for smaller ships, and carries on a considerable salt, fish, bacon and woolen trade. On the lower course of the Dniester lie the river ports of Dubosari (13,000 pop.), located in the midst of vineyards and fruit-gardens and tobacco fields, with a considerable tobacco, wine, cattle and grain trade; Benderi (60,000 pop.), a strong fortress with a considerable trade, surrounded by fruit-gardens, vineyards and melon-patches and Teraspol (32,000 pop.) with a large grain trade. Here the goods shipped down the Dniester are unloaded, to be sent by rail to Odessa.

Odessa (620,000 pop.), the largest city and the most important port of the Ukraine, is situated 32 kilometers north of the Dniester outlet, and opposite the Dnieper liman, on a deep but open roadstead. By means of expensive constructions, the unprotected harbor of Odessa was

considerably improved. It now has six protected harbor basins for ships. In some winters the harbor does not freeze over, at other times remaining frozen from 31 to 67 days, but then it can be kept open without difficulty by ice-breakers. The city itself is built up on the high and naked steppe plain, where orchards can be planted and taken care of only with the greatest difficulty. The city has an entirely European appearance, with broad, straight streets and fine houses. There are almost no historic landmarks in Odessa, since it was founded as late as 1794. The city grew very rapidly, especially in its free-harbor period (1817—1859). Today Odessa is the most important seaport of the Russian Empire, after St. Petersburg, and even surpasses the latter in exports. The exports from Odessa are made up chiefly of grain, also cattle, wood, sugar, fishing products, fats and alcohol. These exports go to England, Germany, France, Italy, Holland, Belgium and the far east. The imports of Odessa are disproportionately smaller than the exports, and are made up chiefly of coal, rice, tropical fruits, tea, etc., the benefit of which goes mostly to the cities of Central Russia. Outside of this commercial activity, which is directed by the stock exchange and the numerous banks, Odessa also possesses a well-developed factory industry (mills, sugar, oil, macaroni, canned-goods, alcohol, metal, ceramic, and chemical factories). About the year 1900, the annual productive value was 70 million rubles. Odessa is also a university city, and one of the intellectual centers of the Ukraine. In the vicinity of Odessa are the famous limans of Kuyalnik and Khadzybei, with their sanatoriums.

On the Boh, at the point where the river becomes navigable, lies Vosnesensk, an important river port, with some industry and considerable wood and grain trade. On the deep Boh liman, at the mouth of the Inhul, lies Mikolaiv (103,000 pop.), a very important naval and

commercial harbor, which has the greatest exportation of grain, after Odessa, and large shipyards, foundries and machine-shops. Krivi Rih (15,000 pop.), on the Inhul, has 33 iron mines, and is the center of Ukrainian iron mining.

On the Dnieper, on the border of the Pontian and Dnieper Plains, lies the city of Katerinoslav (218,000 pop.), hardly more than a century old. Katerinoslav owes its great importance to its position on the Dnieper at the beginning of the rapids section, and at the end of the upper steamboat navigation, where an important railroad line crosses the river, connecting the iron mines of Krivi Rih with the coal fields on the Donetz. Hence, Katerinoslav is, above all, an industrial city with large foundries, forges and machine shops. Katerinoslav carries on the greatest lumber trade in the entire Ukraine. Its grain and coal trade is very important too. Below the rapids, in the old Zaporog country, sacred to every Ukrainian, lies the rapidly rising city of Olexandrivsk (51,000 pop.), an important river port and railroad junction, with a metal and milling industry. Nikopol (17,000 pop.), the point of crossing of the old commercial road over the Dnieper into Crimea, is the center for manganese mining, and has some milling industry. Its harbor is exceptional in that it is reached by smaller sea-vessels, which, however, sail up the Dnieper only as far as Berislav (12,000 pop.), where the grain is transferred from river boats to sea-vessels. On the left Dnieper bank, opposite Berislav, lies the important river harbor of Kakhivka. Oleshki has considerable vegetable, fruit and melon-culture, fishing and crab-fishing.

Not far from the outlet of the Dnieper into its liman, lies the government capital, Kherson (92,000 pop.), like Odessa, Mikolaiv and Katerinoslav, a young city of the end of the 18th Century. Its harbor was first made accessible to large sea-vessels by the dredging of the ship-canal of

Otshakiv in the Dnieper liman (1887), and since then the city has been growing rapidly. Kherson carries on a very important lumber and grain trade, and has large saw-mills, grain-mills, soap and tobacco factories. Two fortresses defend the entrance to the Dnieper liman, Ochakiv (12,000 pop.), with an insignificant harbor for coast vessels, and Kinburu.

In the narrow strip of low country on the north shore of the Black Sea, all the larger cities keep close to the coast. Melitopol on the Molochna (17,000 pop.), carries on considerable trade in cattle, lumber, skins, eggs and wool, and has large mills, alcohol-stills and factories, which make agricultural machinery. Berdiansk (36,000 pop.), despite its poor harbor, exports much grain, and has machine factories, mills, breweries, and fine fruit gardens and vineyards. The former great importance of Berdiansk has been inherited by Mariupol (53,000 pop.), with a good harbor at the mouth of the Kalmius, a city which possesses some factory industry, and carries on an active export trade in coal, coke, metal and grain. Still more important are the harbors at the mouths of the Don. Opposite the Don delta lies Tahanroh (75,000 pop.) with a leather and metal industry, as well as an extensive trade in grain, fish, beef, oil, bacon, leather and fruit, the most important grain exporting harbor of the Ukraine, after Odessa and Mikolaiv. In the Don delta lies Rostiv (172,000 pop.), the most important commercial city of Southeastern Ukraine, with an extensive trade in grain, cattle, wool and flax, large mills, shipyards, tobacco and machine factories. The Armenian city of Nakhichevan (71,000 pop.) forms the suburbs, as it were, of Rostiv, taking considerable part in its industrial and commercial activity. The historically memorable city of Osiv (Azof, 31,000 pop.) is an important center of the Don and Azof fishing industry, and has some grain trade. Yesk (51,000 pop.), on the eastern shore of the

Sea of Azof, has some grain export, and is a not insignificant importing city.

The mountains and hill country of the Crimea are not properly a part of the Ukrainian territory, altho the Ukrainian element flows into the villages and cities of the land in an uninterrupted stream, while the Mohammedan Tartar population emigrates to Turkey. In the northern part of the Crimean peninsula, the economic and settlement conditions are the same as in the Pontian lowland. There is an especially important cattle-raising industry. In the southern, mountainous part of the peninsula, agriculture and cattle-raising lose their predominating importance, and fruit, wine and vegetable-cultivation, navigation and salt-making, which flourishes along almost the entire coast of the Crimea, comprise the chief occupations of the population. The chief center of salt-manufacture lies on the salt lakes and limans of Eupatoria (30,000 pop.), where also famous sanatoriums are located. In the northern foothills of the Yaila lies the ancient capital of the Khans, Bakchisarai (13,000 pop.), which has entirely preserved its oriental character, as well as the new capital of Tauria, Simferopol (71,000 pop.), the center of the fruit and wine-culture and of important fruit-canning factories. An extensive fruit trade is carried on also by Karasubazar (15,000 pop.).

At the gates of the Crimean Riviera is the city of Sevastopol (77,000 pop.), world renowned since the Crimean War, a great sea-fortress and the strongest naval port of the Russian Empire in Europe. The commercial harbor of the city has been without importance for the last twelve years. In the vicinity, on a beautiful bay, lies Belklava, known for its fisheries. On the southern coast is the following chain of watering-places and summer-resorts: Alupka, Livadia, Yalta (23,000 pop.), Orianda, Alushta, Hursuf. In the summer patients and vacationists come

here from all the cities of Russia, and the Riviera of Crimea is also growing continually in importance as a winter resort.

On the eastern spurs of the Crimean peninsula lie two large cities. Feodosia (formerly Kaffa, 40,000 pop.) is the largest commercial port of Crimea, with a considerable grain and fruit export. Kerch (57,000 pop.) also has a commercial port, used especially by large ships, which must avoid the shallow Sea of Azof, but the city derives a much greater importance from its extensive fishing industry, its fish-canning and milling industry, and in recent years its metallurgical industry, which exploits the large mineral deposits of the region.

The sub-Caucasus country of Kuban, colonized a century ago by the posterity of the Zaporogs, offers, in its western part, an anthropogeographical picture quite analogous to the other central regions of the ancient Ukraine. It is actually a piece of the old Ukraine, transplanted to the foot of the Caucasus Mountains, with its large villages, farms (*khutori*), its important agriculture and extensive cattle-raising. Fishing, lumbering and hunting play an important part in its economic life, besides fruit and wine-culture. The mining industry is showing great promise.

The eastern and southern part of the sub-Caucasus country, which, besides parts of Kuban, embraces also parts of the Government of Stavropol and of the Black Sea and Terek regions, is a land newly settled by the Ukrainians, and has a still imperfect anthropogeographical type.

The center of the land and of the Ukrainian cultural life is Katerinodar (100,000 pop.) on the Kuban, the capital of the Kuban Cossacks. It carries on an active trade in agricultural products. The main port of the region is the rising city of Novorossysk (61,000 pop.), with a large grain, wool and petroleum export. Temriuk, in the Kuban delta,

also exports much grain. On the Bila lies the commercial city of Maikop (49,000 pop.); on the Luba, Labinsk (33,000 pop.), both important for the exchange of products of the plains and the mountains. On the Stavropol Plateau lies Stavropol (61,000 pop.), with an important grain and cattle trade, Praskoveya (11,000 pop.), with considerable wine-culture, and Olexandrivsk (10,000 pop.). At the foot of the mountain range lies the renowned mineral spring region around the commercial city of Piatihorsk (32,000 pop.).

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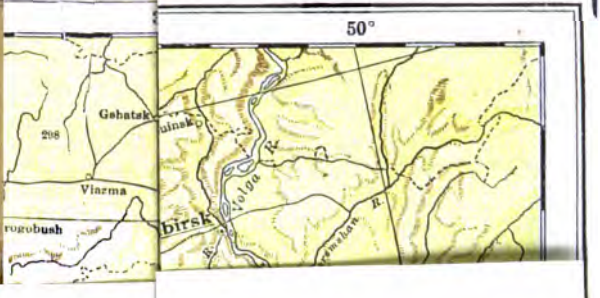
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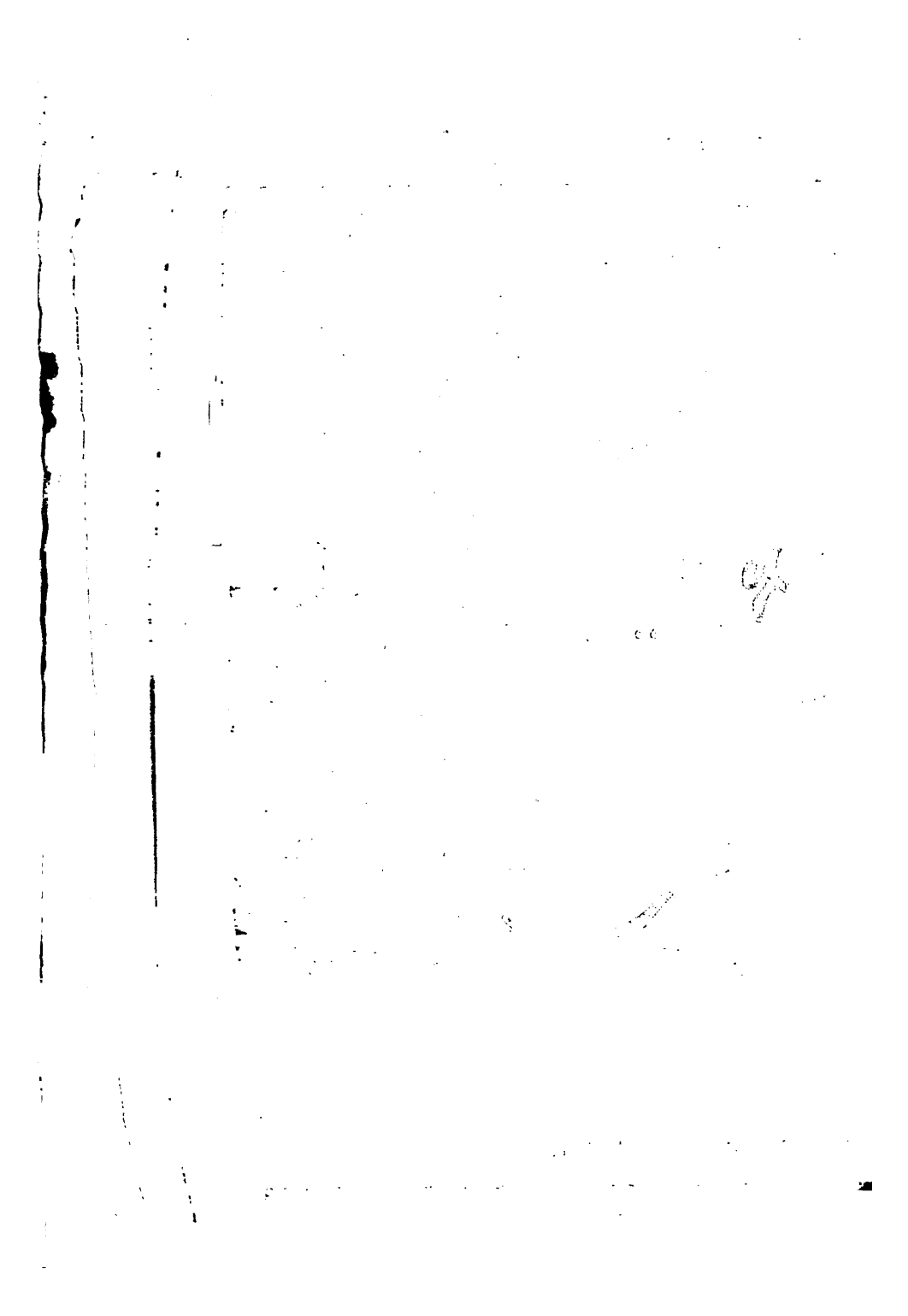

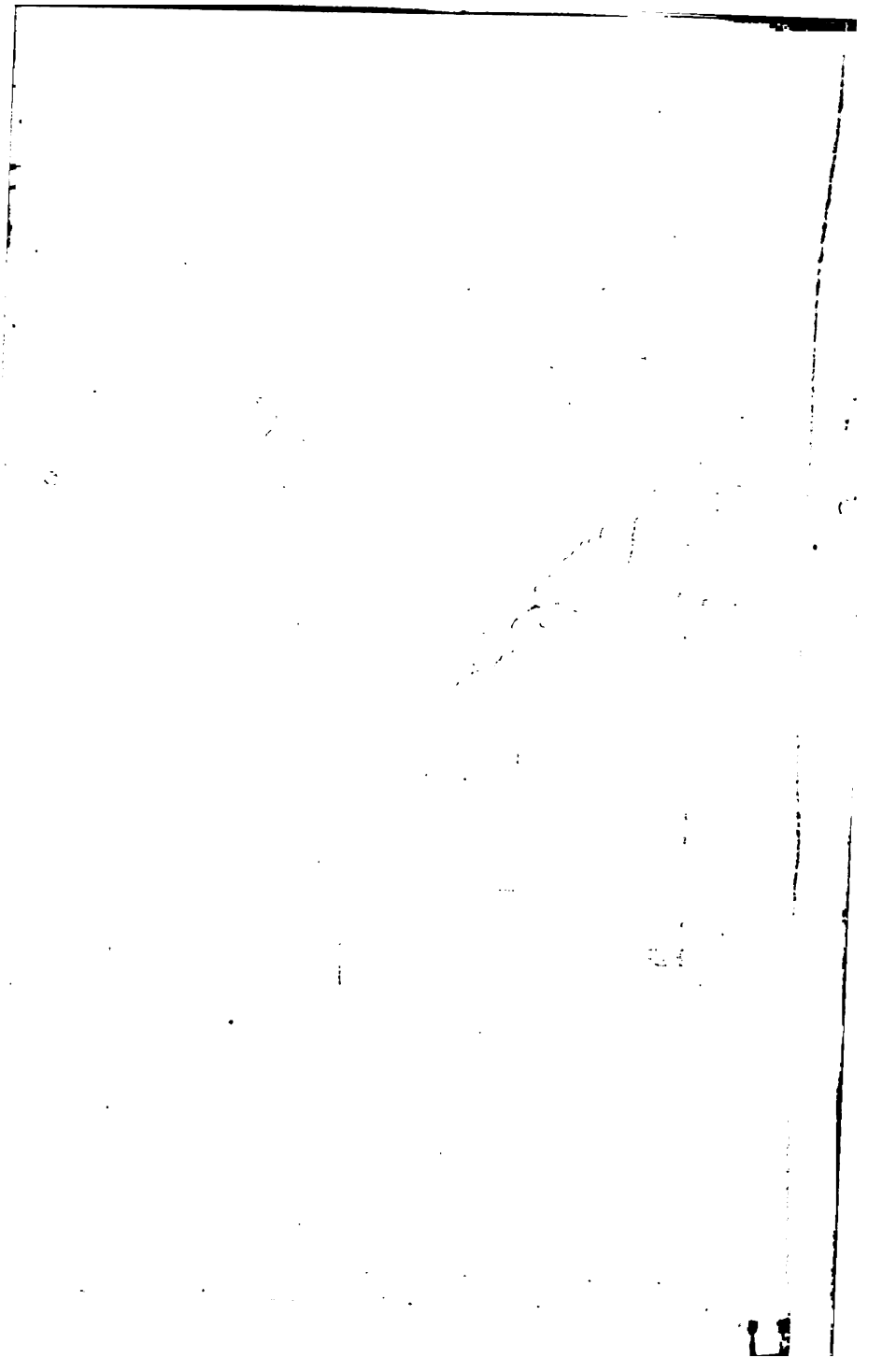

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